



# Final Environmental Impact Statement for the New Panama Canal Treaties

December 1977



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DEPARTMENT OF STATE

FINAL ENVIRONMENTAL IMPACT STATEMENT  
FOR THE NEW PANAMA CANAL TREATIES

December 1977

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## SUMMARY

STATEMENT TYPE: Final Environmental Statement  
PREPARED BY: Department of State

(Attention: Mr. William Mansfield, III  
Office of Environmental Affairs  
(Room 7820)  
Department of State  
Washington, D.C. 20520

1. Type of Action: Treaty
2. Brief Description of Proposed Action:

The President, with the advice and consent of the Senate, proposes concluding a new Panama Canal Treaty with the Republic of Panama concerning the operation and defense of the Panama Canal. Panama, the Canal Zone and the United States are affected. Other elements in this Statement are a Treaty Concerning the Permanent Neutrality and Operation of the Panama Canal and a number of agreements associated with these Treaties.

3. Summary of Environmental Impacts and Adverse Environmental Effects:

A number of U.S. and Panamanian employees of the Canal Company and Canal Zone Government will lose their jobs under the proposed Treaty's terms. In addition, if environmental protection measures in the Treaty prove ineffective, the forests in the Canal watershed may be lost. Possible toll increases might result in greater truck and rail traffic across the United States.

4. Summary of Major Alternatives Considered:

This Statement examines the alternatives of taking no action on the proposed Treaty, postponing further action on the Treaty, implementing the Treaty's provisions (including those on environmental protection), and the possibility of a new treaty with stronger environmental safeguards.

5. Agencies and Parties from Which Comments Have Been Received:

The period for comment on the draft of this Environmental Impact Statement was initially 30 days; on September 28, 1977 it was extended to 45 days.

Comments on the draft of the statement were received from the following:

Federal Agencies

Arms Control and Disarmament Agency  
Department of Agriculture, Agricultural Research Service  
Canal Zone Government/Panama Canal Company  
Central Intelligence Agency  
Department of Commerce  
Defense Logistics Agency  
Department of the Air Force  
Environmental Protection Agency  
Federal Power Commission  
Department of Health, Education and Welfare  
Department of the Interior  
Department of Labor  
National Science Foundation  
Nuclear Regulatory Commission  
Department of State  
Agency for International Development  
U.S. Embassy, Republic of Panama  
Department of Transportation  
Federal Aviation Administration  
Veterans Administration

Private Organizations

Canal Zone Non-profit Public Information Corporation  
Center for Law and Social Policy, on behalf of:

American Rivers Conservation Council  
Defenders of Wildlife  
The Environmental Fund  
The Environmental Defense Fund  
Environmental Policy Center  
Friends of the Earth  
Fund for Animals  
Izaak Walton League  
National Parks and Conservation Association  
Natural Resources Defense Council  
World Wildlife Fund  
Sierra Club  
Wilderness Society

National Audubon Society  
Panama Audubon Society  
Gorgas Memorial Institute  
National Wildlife Federation  
The Nature Conservancy  
World Wildlife Fund  
Canal Zone Civic Councils

Individual Comments:

Individual comments were received from Paul J. Baicich, Robert S. Flumack, Edward C. Hodson, James R. Karr, Thomas P. Strider, Steve West and W. M. Whitman.

6. Date Draft Statement Made Available: August 30, 1977

Date Final Statement Made Available: December 15, 1977

TABLE OF CONTENTS

Summary Sheet. . . . . i

Table of Contents. . . . . iv

List of Appendices . . . . . vi

I. DESCRIPTION OF PROPOSED ACTIONS . . . . . 1

    A. Panama Canal Treaty . . . . . 1

    B. Neutrality Treaty . . . . . 2

    C. Other Agreements . . . . .

    D. Description of the Environment . . . . .

        1. Physical and Natural Environment . . . . .

        2. Sanitation . . . . .

        3. Housing. . . . .

        4. Employment . . . . .

        5. Services and Commercial Operations . . . . .

        6. Archaeological, Historic and Scenic Sites. . . . .

II. RELATIONSHIP OF THE PROPOSED ACTIONS TO LAND USE PLANS, POLICIES AND CONTROLS . . . . .

    A. U. S. Laws and Regulations . . . . .

    B. Panamanian Laws and Regulations . . . . .

III. PROBABLE ENVIRONMENTAL IMPACTS . . . . .

    A. General Treaty Provisions on Environmental Protection . . . . .

    B. Impacts on U. S. Land and Water Use Areas . . . . .

        1. Areas for the Operation, Maintenance and Sanitation of the Canal. . . . .

        2. Defense Sites . . . . .

        3. Employment . . . . .

        4. Shedding of Services and Commercial Operations . . . . .

        5. Integration of Public Utilities . . . . .

        6. Third Lock and Sea Level Canal Options . . . . .

        7. Toll Increases . . . . .

        8. Archaeological, Historic and Scenic Sites . . . . .



- C. Impacts in Areas of Joint Coordination . . . . .
- 1. Military Areas . . . . .
- 2. Ports and the Panama Railroad . . . . .
- 3. Housing Areas . . . . .
- D. Impacts in Panamanian Land and Water Use Areas . .
- 1. Forest Areas and Wildlife. . . . .
- 2. Panamanian Development Plans . . . . .
- 3. Population Changes/Sanitation . . . . .
- 4. Panamanian Troop Relocation . . . . .
- IV. ALTERNATIVE TO PROPOSED ACTIONS . . . . .
- A. No Action . . . . .
- B. Postponement . . . . .
- C. Treaty Implementation with Environmental Provisions . . . . .
- D. New Treaty . . . . .
- V. UNAVOIDABLE ADVERSE IMPACTS . . . . .
- VI. RELATIONSHIP OF SHORT-TERM USE vs. LONG-TERM PRODUCTIVITY . . . . .
- VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES . . . . .
- VIII. CONCLUSION . . . . .

List of Appendices

- Tab A - Map of the Canal Zone
- Tab B - Text of Treaties Relating to the Panama Canal
- Tab C - Documents Associated with the Panama Canal Treaties
- Tab D - Selected Bibliography
- Tab E - Lists of Animal Species in the Canal Zone
1. Species Included in Proposed Panamanian Law for Protection of Wildlife and Habitat
  2. Endangered Species in the Canal Zone
  3. Birds of the Pipeline Road
  4. Migratory Game Birds
- Tab F - Canal Company Commercial Activities and Services
- Tab G - Archaeological Report
- Tab H - U. S. and Panamanian Conservation Laws and Regulations
1. Environmental Laws and Regulations Applicable to the Army in the Canal Zone
  2. Environmental Regulations, Policies and Committees in the Canal Zone
  3. Summary of Oil Pollution Laws and Regulations Applicable in the Canal Zone
  4. Wildlife and Forest Preserve Regulations
  5. Wildlife, Hunting and Fishing Regulations
  6. Panamanian Forestry and Water Legislation
  7. Proteccion a la Fauna Silvestre Panameña
- Tab I - Map - Proposed Sea Level Canal Route 10
- Map - Proposed Plan for Third Locks
- Tab J - National Academy of Sciences Committee on the Ecology of the Interoceanic Canal
- Tab K - National Research Council Letter of September 28, 1977

- Tab L - Environmental Assessment of Proposal to Increase Tolls, April, 1976
- Tab M - Map of the Pipeline Road Area
- Tab N - AID Watershed Management Project Identification
- Tab O - Atlantic Terminal Cities Road Map
- Tab P - Comments on the Draft Environmental Impact Statement by Federal Agencies, Private Organizations and Individuals
- Tab Q - Department of State Responses to Comments on the Draft Environmental Impact Statement



PANAMA CANAL TREATIES  
ENVIRONMENTAL IMPACT STATEMENT

I. DESCRIPTION OF PROPOSED ACTIONS

A. Panama Canal Treaty

The new treaties on the Panama Canal will provide an entirely new basis for cooperation between the United States and Panama in the operation and defense of the Panama Canal. They will replace the U.S.-Panama Treaty of 1903 and subsequent amendments, which have governed Canal operations since the waterway's construction.

Under the 1903 Treaty, the U.S. has total control of Canal operations. The U.S. also administers the Canal Zone -- an area of Panamanian territory five miles wide on either side of the Canal. In this area, Panama has sovereignty while we have "as-if-sovereign" rights permanently. This arrangement is deeply resented in Panama and a liability in our relations with Latin America and with many other nations in the world.

In negotiating a new treaty, the United States has proceeded on the basis that its national interest lies in assuring that the Canal continues to be efficiently operated, secure, neutral, and open to all nations on a non-discriminatory basis. Fundamental to this objective is the cooperation of Panama.

The negotiations, extending over thirteen years, have been pursued by four Administrations of both Parties. They began in 1964, following a serious crisis in U.S.-Panamanian relations created by rioting along the Canal Zone boundary in which 20 Panamanians and four Americans were killed. In December 1964, President Johnson, after consulting with Presidents Eisenhower and Truman, announced that the U.S. would begin talks with Panama on an entirely new Canal Treaty. These negotiations resulted in draft treaties that were not acted on by either country. The present series of negotiations began in 1973 with the appointment of Ambassador Bunker as Chief Negotiator by President Nixon and continued during the Ford Administration. President Carter decided to continue the negotiations after taking office in January 1977, and appointed Ambassador Sol Linowitz to serve as Co-Negotiator with

Ambassador Bunker. The Department of Defense has been an active participant in the negotiations and has been represented by Lt. General Welborn G. Dolvin.

The treaty with the Republic of Panama concerning the Panama Canal covers the following subjects:

- Termination of previous agreements;
- United States rights to manage, operate, protect and defend the Canal;
- Implementation of the Treaty in ways which will protect the natural environment;
- The legal status of U.S. citizens connected with the operations and defense of the Canal;
- Transitional arrangements for an orderly transfer of responsibilities for the operation and defense of the Canal;
- Possible construction of a new Canal and additional major canal facilities; and
- Duration of the new Treaty.

B. Neutrality Treaty

The Treaty Concerning the Permanent Neutrality and Operation of the Panama Canal is a relatively brief document which includes the following provisions:

- Panama declares the neutrality of the Canal so that it shall remain secure and open to peaceful transit by the vessels of all nations on terms of entire equality subject to compliance with non-discriminatory rules and regulations;
- The Canal shall be operated efficiently and tolls and other charges shall be just and reasonable;
- Vessels may be required to establish financial responsibility for damages resulting from acts or omissions when passing through the Canal;

- Vessels of war and auxiliary vessels of all nations shall at all times be entitled to transmit the Canal irrespective of their internal operation, means of propulsion, origin, destination, or armament, without being subjected to search or surveillance except for considerations of safety. Such vessels may be required to certify that they have complied with all health regulations. Such vessels shall be entitled to refuse to declare their internal operation, armament, cargo, origin or destination. Auxiliary vessels may be required to present written assurances that they are owned and operated by the government requesting such exemption and are on government non-commercial service;
- The Republic of Panama and the United States of America agree to maintain the regime of neutrality;
- After the termination of the Panama Canal Treaty, only the Republic of Panama shall operate the Canal and maintain military forces and installations within its national territory;
- United States and Panamanian vessels of war or auxiliary vessels shall be entitled to transit the waterway expeditiously irrespective of internal operation, means of propulsion, origin, destination, armament or cargo;
- The United States may provide Colombia and, after expiration of the Panama Canal Treaty, Panama may provide Colombia and Costa Rica with toll free transit for their troops, naval vessels and materials of war;
- Other nations may subscribe to a separate protocol acknowledging and agreeing to respect the regime of permanent neutrality for the Panama Canal.

Canal operations under this Treaty will be similar to those under the Panama Canal Treaty, the environmental impacts of which are discussed in this Statement.  
(Texts of the Treaties are at Tab B.)

### C. Other Agreements

In addition to the Panama Canal Treaty, separate bilateral agreements have been concluded with the Panamanian Government concerning the activities of a variety of U.S. agencies in the Canal Zone. The following are those of primary environmental interest:

1. Continuation of the research facilities of the Smithsonian Tropical Research Institute at Barro Colorado Island, Galeta Island and its office/laboratory in Ancon;
2. Continuation of the work of the U.S. Army's Tropic Test Center, with its Gamboa test area, a 7,500 hectare tract of tropical forest along the Pipeline Road.
3. Continuation of the research work of the Gorgas Memorial Institute of Tropical and Preventive Medicine and the Gorgas Memorial Laboratory.

(Texts of these agreements are at Tab C, page 53.)

### D. Description of the Environment

The key elements of the environment which will be affected by the Panama Canal Treaty and the potential environmental consequences which appear to justify the greatest concern are the following:

- The tropical forests in the Canal Zone with their flora and fauna. If deforestation of the land areas turned over to Panamanian control should occur, this would impact on U.S. as well as Panmanian interests because it would degrade the watershed upon which the Canal depends for its operation and would result in loss of the wildlife in these areas, which includes a number of endangered species.
- The economic and social dislocation of those employed in the operation, maintenance, and management of the Canal.



- If adequate land maintenance and sanitary practices are not adequately funded and maintained, an increase in insect-borne disease, particularly malaria, would occur. Maintenance of public health standards is important to the effective operation and security of the Canal.

The following description covers the physical and natural environment of the Canal Zone (with emphasis on four areas of special interest to naturalists); sanitation, housing, and employment in the Zone; the Canal Company's service and commercial operations; and archeological, historic, scenic sites.

1. Physical and Natural Environment  
(see map of the Canal Zone at Tab A)

The narrowest part of the American Isthmus lies in and adjacent to the existing Panama lock canal. It is also the area of lowest topography. The isthmus at this point runs nearly east and west and at its narrowest point is about 30 miles in width (between Limon Bay on the Atlantic and the Gulf of Panama on the Pacific). The Continental Divide roughly parallels the Pacific coast, about 10 miles inland. Local hills in the divide in this area rise to about elevation 1,200 feet. A secondary divide at a lower elevation parallels the Atlantic coast. It was geologically pierced by the Chagres River at Gatun, but the original gap has been closed by Gatun Locks and Dam. The drainage area of Gatun Lake lies between the two divides.

The existing Panama Canal has been constructed across the narrowest portion of the isthmus generally following the river valleys. The Canal Zone is a strip of land across the Isthmus of Panama extending generally five miles on each side of the centerline of the Canal. It includes also the areas contained within the 100-foot contour around Gatun Lake and the 260-foot contour around Madden Lake, but excludes the cities of Panama and Colon.

Panama's population centers, Panama City (population 518,000) and Colon (population 73,000) are situated at the ends of the Panama Canal and linked by a railroad and two-lane highway. Both cities have available the excellent harbor facilities of the Panama Canal Company at Cristobal on the Atlantic side and Balboa Harbor on the Pacific.

The geology of the divide area is complex and characterized by wide variations over short distances between competent rock and materials of very low strength. The terrain on the Pacific side which includes the Continental Divide, is dominated by conical hills capped by basalt or agglomerate and surrounded and underlain by weak sedimentary and pyroclastic rocks. Materials in the central sector of this area vary from clay shales and soft altered volcanics to relatively strong sandstone and basalts. The ridges of the Atlantic coast consist of medium hard sandstones.

The Canal Zone has a typical low-latitude tropical climate. Temperatures are moderately high, averaging about 80 degrees, and rarely exceeding the extremes of 65 and 95 degrees. Relative humidity varies with rainfall. Annual average humidity is about 80 percent and has an average variation from 75 percent in the dry season to 90 percent during the wet season. The Atlantic coast generally experiences higher winds and almost twice the precipitation of the Pacific coast. Annual migration northward in the spring and southward in the fall of the northeast tradewinds and doldrums divides the year into well-defined wet and dry seasons. The dry season is normally from mid-December to mid-April and the wet season the other eight months. October and November have the highest precipitation, with rain occurring nearly every day. Seasonal changes may vary as much as one month either way. High intensity thunderstorms have occurred in every month except February.

The Atlantic and Pacific marine species are closely related, even though few are identical. This condition reflects the fact that these oceans were united until recent geological time, probably three to four million years ago. In general, the Atlantic ecosystems provide more habitat diversity than the Pacific. The differing adaptations and competitive abilities of the biota reflect the differences in environment on either side of the Isthmus.

The Atlantic coastal environment would generally be characterized as mild and constant compared to relatively rigorous and variable features on the Pacific coast. The Pacific undersea slopes are very gently sloping with the 10-fathom isobath varying between five and seven miles offshore. The Atlantic shelf is much steeper with very little area less than five fathoms deep.

The Pacific tide is semidiurnal with the maximum range of about 21.1 feet and a mean range of about 12.7 feet. The Atlantic tide is very irregular with a maximum range of about 2 feet and a mean range of about 1 foot.

The Atlantic waters exhibit a narrow temperature range for depth and season compared to the slightly cooler Pacific. While the salinities at the Pacific side may approach those of the Caribbean during the dry season; wet season salinities are four to six percent lower.

Turbidity of Pacific waters tends to be higher than that of the Atlantic. Its nutrient content, benthic biomass and primary productivity are also higher. Food chains are longer in Atlantic ecosystems.

Robert S. Ridgley has noted that the extent of forest cover has varied over the millennia, influenced in part by climate fluctuations (dry periods favoring the spread of savannas, rainy periods the spread of forest) and in part by human population. Though it comes as a surprise to most people, some evidence indicates that at the time of the Spaniards' arrival around 1500 A.D. the Indian population was so large that less of Panama was forested than was the case until very recently. It is likely, thus, that Balboa passed through planted fields and not through solid forest, in crossing the isthmus to "discover" the Pacific. Much of the forest in eastern Panama especially (where the Indian population was apparently very large), appears to be essentially a regrowth from that period, when for a variety of reasons the Indian population was substantially reduced. But given the technology of Indian society at that time, and the shifting slash-burn type of agriculture then employed (far less damaging to the soil or to potential regrowth than present methods), forest clearing was surely not as total as it usually is today. Unquestionably, forest pockets would have remained from which rapid reforestation could take place. The Pacific slope of much of the more humid parts of western Panama was, until the early decade of the present century, covered with extensive forest. Today, almost all has been removed from the lowlands except along some watercourses and on some steep hillsides, and the only area where much forest remains is the still roadless western side of the Asuero Peninsula.\*

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\*There is no single reference work covering the forests of Panama and the Canal Zone and their wildlife. Detailed descriptions of various aspects of this subject will be found in the works listed in the selected bibliography at Tab D.

Two substantial areas in the Canal Zone are identified as forest and wildlife preserves or natural areas. These are Barro Colorado Island, which has 3,650 acres, and the Canal Zone Forest and Wildlife Preserve (Madden Forest) of 3,500 acres. (See map at Tab A.)

Barro Colorado Island is a biological reserve and research station operated by the Smithsonian Tropical Research Institute. It was formed when the Chagres River was dammed in 1914 during the construction of the Panama Canal to create Gatun Lake. Its highest point now stands 460 feet above lake level, separated from the surrounding forested mainland by distances ranging from more than a mile to only several hundred yards. It is three miles across and 3,650 acres in area with a very irregular shoreline about 30 miles long. The island is forested except for two small maintained clearings. The forest represents various stages of maturation ranging from small patches about 50 years old to areas more than 200 years old. The forest can be classified as tropical Monsoon Forest (Koppen System), a Tropical Moist Forest (Holdridge System), or intermediate between an evergreen and semi-evergreen seasonal forest (Beard System). Many of the trees are deciduous. Although the forest is never completely without either flowers or fruit, many species flower in either the dry season or in the early portion of the rainy season.

The fauna and flora are rich in species and typical of what similar habitat used to be elsewhere in Panama. There are approximately 1300 species of vascular plants. Certain species of mammals and birds are much more abundant here than in areas where they are hunted. There are about 465 species of land vertebrates recorded from Barro Colorado, 310 species of birds (some 200 species breed there), 97 species of mammals, 58 species of reptiles, and 32 species of amphibians. Invertebrates are present in proportional variety.

Barro Colorado Island has been a wildlife preserve since 1923, under Federal control since 1940, and under care of the Smithsonian Institution since 1946.

Scientists working at the Barro Colorado field station are involved in all areas of ecology and behavior of the island's plants and animals. Some studies have continued for more than a decade. It is one of the few places in the tropics where long-term studies can be planned. In addition, the Smithsonian is conducting

a long-range, multi-disciplined study of natural fluctuations in several different ecosystems. Studies of this type are essential to the proper evaluation of environmental problems resulting from man's impact on the ecosystem. The importance of Barro Colorado Island, the immediate surrounding area on the west bank of the canal and the Pipeline Road Area is shown by the number of species protected by law which occur there. Two documents demonstrate this, the Panamanian Game Laws (Decree No. 23, January 23, 1967) and the Endangered Species Act (P.L. 93205).

Panamanian Game Laws list 16 species of protected animals. Ten of these 16 species (63 percent) have been reported both on Barro Colorado Island and in the Pipeline Road Area. The U.S. Endangered Species Act lists all species threatened with extinction which are now or may be affected by trade. It includes 157 species of mammals; 40 of these (26 percent) occur in the New World, eight occur on Barro Colorado Island and in the Pipeline Road area. Thus, the staff of the Canal Zone Environmental Quality Committee calculate that five percent of all the endangered mammals in the world and 20 percent of those in the Americas occur in these areas. (See Tab E.)

The Pipeline Road area is licensed to the Department of the Army by the Canal Zone Government\* under authority of the Canal Zone Code, Title 2, Section 333. Tropic Test Center is the holder of license number 2814 (16, 415.1 + acres) and the 193rd Infantry Brigade is licensee for two parcels under license number 3119 (No. 1-12, 236.8 + acres, and No. 2-6, 188.6 + acres). In addition, the Department of the Navy holds a licence in the nature of a right-of-way of easement covering the areas of land occupied by the licensee's oil lines and handling facilities. The land along the Pipeline Road is an area of relatively undisturbed tropical low-land wet forest which contains some 239 species of birds which do not occur outside the New World Tropics.

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\*The Canal Zone Government exercises governmental functions in the Canal Zone. The Panama Canal Company operates the Canal, its administrative support, and related commercial activities. The functions of the two entities are closely related, e.g. the Governor of the Canal Zone is also President of the Canal Company.

In addition, numerous species of mammals and reptiles inhabit the forest. (See Tab E.) Over the past four years, hunting activity in this area has increased. While some of the hunting is by licensed hunters, illegal night hunting and hunting with packs of dogs has been reported. The result has been extreme diminution of the number of breeding animals and young of each species to the point where continued existence of the population is threatened.

The Canal Zone forest preserve was established in May 1930 by order of Governor Harry Burgess and is administered and protected by the Canal Zone Government. The land area of the preserve encompasses nearly six square miles (3,500 acres) of mature tropical deciduous forest (Holdridge System) located 10 miles north of Balboa and totally within the boundaries of the Canal Zone. The eastern boundary of the forest preserve abuts on the Republic of Panama-Canal Zone border. The historic Las Cruces trail, used by the forty-niners to avoid the long overland trek to California during the Gold Rush, passes through the preserve. Hunting, injuring, or molesting of wild animals and birds and their nests in the preserve is prohibited. The cutting down, destroying, injuring or carrying away of any timber or plants in the preserve is prohibited without the express authority of the Governor. As provided by the Canal Zone Code, whoever violates these provisions is subject to fine or imprisonment.

The area, while biologically complex, is not sufficiently extensive to support many of the large animals, but many of the small mammal and reptile species are abundant. The avian fauna is diverse and common during much of the year. The forest preserve is used extensively by residents of the Canal Zone and Panama. The Canal Zone Government maintains two recreational sites within the preserve. The Las Cruces Trail picnic area has a parking area with an aluminum roof, open-side shelter and three picnic tables with benches. The George W. Green Park and picnic area located along Madden Road has several picnic tables, benches and restroom facilities; several biking trails extend out from each facility.

The areas of Panama adjoining the preserve have a large rural population and the area along the border is frequently used by itinerant agriculturalists who cut down and burn foliage to clear a land area for farming. The

Canal Zone police have six bush patrolmen responsible for protection of the total wilderness and lake area of the 550 square mile Canal Zone. The numbers of incursions and extent of the damage has increased significantly in the past three years as population density along the border areas has continued to grow.

The original Farfan Marsh habitat was a mangrove marsh of mud flats of approximately 1200 acres. (See map at Tab A.) During the 1950's, four tidegates were constructed to prevent salt water entrance and the area was converted to a grassland habitat. In early 1968, the grassland habitat was destroyed by deposition of marine sediment from dredge spoil, which created a habitat similar to the original mangrove, but even more favorable to biting gnats and mosquitos. The area has been flooded with fresh water on several occasions as an emergency measure to protect the health of residents of Fort Kobbe, Howard AFB and Farfan Naval Housing areas.

The Farfan Marsh is an area of prime habitat which is frequented by more than 19 different species of waterfowl and two species of raptors. (See Tab E.)

The Olivaceous cormorant, a common species, nests from April through June and the area is used as a temporary stop by migratory birds using the Pacific flyway between the U.S. and Central America. Waterfowl numbers and distribution are closely correlated with habitat. When requirements for production, migration and wintering are not met, population numbers decline.

Because the area does not have access to the sea, it is not important for marine production.

## 2. Sanitation

The conquest of disease during the construction of the Canal ranks as one of the great achievements of American medicine. Since that time, maintenance of satisfactory health and sanitary standards has been an important element in the human environment required for the successful operation, maintenance and management of the Canal. In addition, the high sanitation standards in the Canal Zone, together with the Zone's relatively sparse population density, have to a degree provided an epidemiological barrier to the spread of disease from continent to continent by way of the land bridge of the Isthmus.

These standards are maintained by the Canal Zone Government's Health Bureau. In addition to operating three hospitals for the sizeable Canal Zone community, the Bureau carries out a wide variety of public health functions: quarantine for ships using the Canal, rodent control, mosquito and insect-borne disease control, malaria eradication, environmental monitoring, inspection of food establishments, surveillance of water and wastes from a health viewpoint, and sanitary inspection of numerous types of other Canal facilities. In FY 1975, its budget amounted to nearly \$21 million; its staff totalled 1,747 people.

The Gorgas Memorial Laboratory, which is located in the Canal Zone, is engaged in research on diseases endemic to Central America and northern South America, and on means of preventing them and controlling their spread.

### 3. Housing

The Panama Canal Company provides and rents housing to employees who live in the Canal Zone. There are housing sites within the Zone at the following locations: Ancon, Balboa Heights, Balboa (La Boca), Diablo, Los Rios, Corozal, Cardenas, Gamboa, Paraiso, Pedro Miguel, Gatun, Margarita, Coco Solo, France Field, Rainbow City, and Mindi. The total number of units in operation in 1976 were:

<u>Type of Unit</u>	
Family	3,492
Bachelor Apartments	673
Bachelor Rooms	<u>265</u>
Total	4,430

These units provided housing for a total of 13,483 employees of the Company/Zone Government and their dependents. During FY 1976, consolidation of U.S. and Latin American citizen housing was initiated and served to eliminate the de facto separation of the two groups and the appearance of discriminatory practices in housing. The Community Services Division of the Company, which operates this housing as well as maintaining grounds and other buildings in the Zone, employed a staff of 723 in FY 1975.



4. Employment

At the end of fiscal year 1976 the total Isthmian force of the Company/Government was 13,721 compared to 14,898 in fiscal year 1975. Of the total in 1976, 13,136 were full time and 584 part time. In addition, there were 36 military personnel, including the Governor and Lieutenant Governor, assigned to the Company/Government on the Isthmus. Eighty-three persons, all U.S. citizens, were employed by the Company in New Orleans and Washington, D.C.

Approximately 73 percent of the total Isthmian force is comprised of non-U.S. citizens (predominantly Panamanian), and the remaining 27 percent are U.S. citizens. Rates of pay are established on a Canal Zone wage base for occupational categories which can be filled by recruitment on the Isthmus, and on a U.S. wage base for those positions which would normally be filled by recruitment from the United States. The following table shows the Company/Government full-time Isthmian force by citizenship and wage base, excluding student assistants:

	<u>Fiscal Year 1976</u>		<u>Fiscal Year 1975</u>	
	<u>U.S.</u>	<u>Non-U.S.</u>	<u>U.S.</u>	<u>Non-U.S.</u>
U.S. Wage Base:				
Panama Canal Co.	1,951	1,504	2,065	1,486
Canal Zone Govt.	1,410	741	1,434	738
	<u>3,361</u>	<u>2,245</u>	<u>3,499</u>	<u>2,224</u>
Canal Zone Wage Base:				
Panama Canal Co.	112	6,553	110	7,271
Canal Zone Govt.	31	837	30	869
	<u>143</u>	<u>7,390</u>	<u>140</u>	<u>8,410</u>
Total full time force	<u>13,139</u>		<u>14,003</u>	

The total Company/Government payroll reached \$158.1 million in 1976 compared to \$154.1 million in 1975. Of the total, \$81.6 million was paid to non-U.S. citizen employees and \$76.5 million to U.S. citizen employees.

#### 5. Services and Commercial Operations

From the time of construction of the Panama Canal, the Canal Company or its predecessor has undertaken to make available in the Canal Zone supplies and services for employees. This has been accomplished through a complex of retail outlets, cafeterias, and food production or processing plants operated by the Canal Organization. Since 1955, eligibility to buy in Company stores has been limited by treaty to residents of the Canal Zone and U.S. citizen employees of the US Government residing in the Republic of Panama.

The Company retail outlets sell food, clothing, housewares, and most items generally available in U.S. shopping outlets. The various activities operated by the Company include: supermarkets, department stores, gasoline stations, job-site merchandise sections, bowling alleys, optical shops, theaters, vending sites, cafeterias, and food services in support of Company/Government operations. These operations employ a total staff of 1,078. Total revenue derived from these activities was \$39.3 million in FY 1976. Details of these activities will be found at Tab F.

#### 6. Archeological Sites

The Canal Zone contains a variety of sites of archeological and historic interest covering the pre-Columbian, Spanish Colonial, and railway and canal construction periods.

No comprehensive professional survey of pre-Colombian archeological sites has been made in the territory of the Canal Zone. As the settlement orientation of pre-Colombian groups was fluvial, any flood-free location near a water course will

probably provide evidence of some pre-Spanish activity. The upper reaches of the Chagres River and the banks and islands of Gatun Lake are more likely archeological sites in this period.

Many of these sites were submerged with the creation of Gatun and Madden Lakes or destroyed or covered during the construction of the Canal. Consequently the time and expense involved in submarine search and the monopoly of scarce trained personnel is disproportionate to the overall archeological value of sites near the Canal. Efforts are more profitably spent locating unmodified sites on dry land along the banks of the Chagres River and just below the present-day edge of the lakes when the water level is lowered.

Spanish Colonial settlements grew up along the Chagres River in connection with the trans-Isthmian trade routes of which the Camino Real and Camino des Cruces are still partially visible in the Madden Lake and Madden Forest Area. Many are shown on maps of the period. Four outstanding historic features (Las Cruces Trail, the Chagres River, Ft. San Lorenzo and the Defenses on Gatun Hill) are listed in the National Park Service Historic Sites Report "Spanish Colonial Sites in the Panama Canal Zone".

The railroad and canal construction periods are well documented by records and photographs so that knowledge of period is less dependent upon on-site archeological excavations and submarine searches than is the case in the two earlier periods.

Details on archeological sites near the Canal related to all three of these periods will be found at Tab G in a report made in connection with another environmental study by Dr. Richard Cooke, an archeologist-associate of the Smithsonian Tropic Research Institute. He is currently making an archeological reconnaissance survey of U.S. defense sites and areas of joint military coordination.

Summit Park and Contractor's Hill, which is associated with the Canal construction period, are scenic recreational sites in the Zone. There is a zoo of local birds and animals maintained at Summit Park.

## II. RELATIONSHIP OF PROPOSED ACTIONS TO LAND USE PLANS, POLICIES AND CONTROLS

### A. United States Laws and Regulations

The U.S. laws and regulations applicable in the Canal Zone and the Canal Zone Government rules and regulations for environmental protection and control are attached at Tab H. These cover water pollution control, parks and forests, and hunting and fishing.

### B. Panamanian Laws and Regulations

The following are the principal Panamanian laws and regulations relating to environmental protection which will apply in accordance with the provisions of the Treaty:

Forestry legislation is contained basically in Decree-law 39 of 1966. Its objectives are to protect, conserve, renew and exploit rationally the forest resources of the country; to prevent soil erosion; and to regulate and protect hydrographic basins and water sources. It establishes a Forestry Service to administer those provisions.

The following is the basic water legislation of Panama: Law 98 of 1961 creating the Institute of National Water and Sewage Systems; Law 45 of 1963 which sets aside certain river basins as national reserves and establishes an Institute of Hydraulic Resources and Electrification; and Decree-law 35 of 1966 regulating the use of waters and creating a National Water Commission.

Hunting and fishing are regulated by provisions of the Fiscal Code and Decree No. 23 of January 30, 1967.

Details of these laws will be found at Tab H.

### III. PROBABLE ENVIRONMENTAL IMPACTS

#### A. General Treaty Provisions on Environmental Protection

The Panama Canal Treaty makes special provisions for environmental protection. The two Governments commit themselves to implement the Treaty in ways consistent with protection of the natural environment through consultations and cooperation. A Joint Environmental Commission\* will review implementation of the Treaty and make recommendations to the two Governments on ways to avoid or mitigate adverse environmental impacts of actions under the Treaty. The two Governments will provide the Commission with full information on Treaty actions which may have significant environmental impacts. This will be done in timely fashion so that Commission studies and recommendations can be considered before the actions are carried out.

The detailed responsibilities, staffing and operating procedures of the Commission will have to be worked out within the U.S. Government and with the Panamanians. The Environmental Commission will be a key instrumentality for carrying out Treaty Article VI on Protection of the Environment. Its responsibilities will involve monitoring, studying and making recommendations to the two Governments on a broad range of environmental issues that fall within the purview of the Treaty. Many of these matters are the subject of this Environmental Impact Statement. Membership on the Commission should provide a balance of environmental, government and public interests and competences. The Commission should be supported by a professional staff and be located at the Canal Commission's headquarters.

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\*Under the Canal Treaty, overall operation of the Canal will be carried out by the Panama Canal Commission, a U.S. Government agency with U.S. and Panamanian membership. There will also be several Joint (U.S.-Panamanian) Committees for specialized functions such as housing, ports and the railroad, and military areas. In addition, there will be the Joint Environmental Commission.

B. U.S. Land and Water Use Areas

1. Areas for Operation, Maintenance and Sanitation of the Canal

The issues of water conservation, deforestation, soil erosion, and water pollution in the Canal watershed are obviously of major importance as they are directly related to the efficient operation and maintenance of the Canal. Furthermore, since 1974 Madden Lake has been the source of potable water for Panama City.

Under the Treaty, the United States, for the duration of the Treaty, will control the land and water areas of the Canal, its approaches, installations and necessary supporting facilities, and in these areas rules and regulations on measures for environmental protection similar to those now in effect will be carried out by the new Canal Commission.

Water Conservation: The Agreement in Implementation of Article III of the Treaty addresses itself to the problem of water conservation in considerable detail (see Tab C, p.6). It authorizes the U.S. to take a variety of measures to ensure that it will have unimpaired use of the waters of the Canal and of Madden, Gatun and Miraflores Lakes and their tributary streams for the purpose of the operation of the Canal. It further stipulates that the Panamanian Government will ensure that any other land and water use of the Canal's watershed will not deplete the water supply needed for the efficient operation of the Canal.

Water Pollution: Measures to prevent and control oil spills and water pollution are provided for in Article III of the Treaty, which states that "...the United States of America shall, in accordance with the terms of this Treaty and the provisions of United States law, carry out its responsibilities by means of a United States Government agency called the Panama Canal Commission..." Paragraph 3.n. of the Annex to the Treaty sets forth the functions of the Commission, which include "Protection of the environment by preventing and controlling the spillage of oil and substances harmful to human or animal life and of the ecological equilibrium in areas used in the operation of the Canal and the anchorages." The Joint Environmental Commission will be responsible for monitoring the effectiveness of these measures. (For details on water quality in the Canal Zone see the "Canal Zone Water Quality Study, Final Report, Panama Canal Company Water Quality Project, June 1975.)

Sanitation: Maintenance of public grounds in the Canal Zone is an important factor in the efficient operation of the Canal as it impacts directly on malaria control. This also contributes to efforts aimed at preventing the spread of tropical diseases via the Isthmus between South and Central America. Article III of the Treaty provides that the U.S. will pay Panama \$10 million annually out of toll revenues for utilities and specified municipal services, including sanitation.

Preservation of Forests: There has been extensive deforestation in the areas adjacent to the Canal Zone and there are population and economic pressures for further exploitation of the forest areas. By contrast because of restrictions on public access to the Canal Zone watershed and defense areas, much of the Canal Zone is now an island of forest in the midst of a generally



cleared countryside -- probably the most extensive, readily accessible lowland forest area in Middle America. A great variety of birds and even many of the larger mammals can be easily seen. If further deforestation of the watershed and loss of wildlife are to be prevented, the Treaty provisions on environmental protection and Panamanian conservation laws will have to be effectively enforced. This will require close cooperation between the Canal Commission and Panamanian authorities.

Panamanian forestry and water conservation officials (RENARE - the Directorate General for Renewable Natural Resources of the Agriculture Ministry) are anxious to preserve and restore the forests throughout the watershed. In response to their requests, the USAID Mission in Panama has proposed a \$20 million project to assist RENARE in strengthening its capabilities (this is discussed in Section III. D. 1. below). As the water level in the lakes determines the amount of traffic that can be handled by the Canal, it is clearly in Panama's self-interest that the watershed be preserved to avoid disrupting traffic, with a consequent drop in revenues and payments to Panama from them under the Treaty. The U.S. Diplomatic Mission in Panama has noted strong evidence that the Panamanian Government is taking environmental concerns seriously and has given increasingly high priority to the problem of protection of the Canal watershed as the reality of its reversion to Panama is perceived. As evidence of this, the Mission notes that both the Panamanian Minister of Planning and the Vice Minister of Agriculture have recently pressed for early implementation of the AID Watershed Management Project.

Wildlife: As noted in the Description of the Environment section, the Canal Zone forests provide the habitat for a wide variety of species,

several of which are on the Endangered Species list (see Tab E). If hunting is not properly controlled and deforestation prevented, this wildlife will be extirpated.

To prevent this, the Canal Zone hunting regulations are being revised to afford increased protection to these and other species, and the Governor of the Zone has recently posted the Pipeline Road area against hunting. Several of the agreements concluded in connection with the Treaty (see Tab C, pages 53, 55 and 61) are designed to protect the forests and wildlife on Barro Colorado Island and in the Pipeline Road area, while the provisions of the Canal Treaty itself authorize the U.S. to restrict hunting in Canal land use and defense areas (including such tracts as the Farfan Marsh and the Fort Sherman training site). In addition, under Article VI of the Treaty, the U.S. and Panama commit themselves to implement the Treaty in a manner consistent with the protection of the environment of Panama. Experience in working through bilateral commissions on environmental matters with Canada and Mexico gives grounds for thinking that the Joint Commission established under this Article of the Treaty can be effective.

On balance, and in view of the factors discussed above, there are reasons for environmental concern. However, these problems are recognized by U.S. and Panamanian officials and plans are being made to deal with them. The degree of their success will depend upon the resources and support they receive from the two Governments: on the American side from AID Washington and the new Canal Commission; on the Panamanian side from the support and funding RENARE gets from political levels of the Panamanian Government. This will be a real test on the international cooperation called for in Section 102 (2) (F) of the National Environmental Policy Act.

## 2. Defense Sites

Of all the land and water use areas affected by the Treaty, the defense sites made available for exclusive U.S. use for defense of the Canal (see Tab C, page 42, for listing of these sites) will involve the fewest changes. Public access to them will continue to be restricted during the life of the Treaty, i.e., until the end of the century. Construction required by relocation of military activities will be in areas of existing structures and will be quite limited so that no changes are anticipated that will have significant adverse environmental impacts. Because planning on this has just started, it is impossible at this stage to assess these impacts in detail. Military housing areas will be held and maintained by DOD as long as they are necessary. As and if military housing becomes surplus, it will be turned over to Panama.

Restriction on access to these defense sites will have a favorable impact on environmental protection in these areas, which include sites of interest to scientists and ecologists such as Fort Sherman and Galeta Island.

## 3. Employment

According to available estimates, the Treaty will have the following impacts on employment:

- 700 U.S. citizen employees and 3,000 non-U.S. citizen employees of the Canal Zone/Company will be discontinued in the first three years after the Treaty becomes effective;
- 1,000 U.S. and 1,200 non-U.S. citizen employees will be transferred to other agencies within the first three years.

Under the merit system used by the Canal Zone Government/Company these individuals will go through Reduction in Force procedures similar to those in the U.S. Civil Service.

While the Treaty provides for bringing an increasing number of Panamanians into the operation of the Canal, it also contains a number of provisions designed to ameliorate the impact of Treaty actions on those whose jobs will be affected. Panama undertakes to continue the employment to the maximum extent feasible of employees of activities transferred to Panamanian control. The two Governments will assist individuals whose jobs are terminated in finding new employment both in Panama and, for U.S. citizens, in the United States. Any U.S. citizen employee whose job is adversely affected by the Treaty will enjoy priority job placement assistance. The Treaty also stipulates that the U.S. will provide an appropriate early optional retirement program for all persons employed by the Canal Zone Government/Company immediately prior to the entry into force of the Treaty. A determination will be made invoking the laws permitting early retirement annuities and legislation will be sought to provide more liberal entitlement to, and calculation of retirement annuities than the law currently provides. Other Treaty provision are designed to protect the social security, retirement, and health benefit rights of those employees who are shifted from Canal Company/Zone to Panamanian Government employment.

The Treaty will also ensure that American citizen employees who continue with the new Canal Commission retain, in general, the same benefits and protections enjoyed by U.S. federal employees world-wide. Present U.S. citizen employees will have access to military postal, post exchange and commissary facilities for the first five years of the Treaty and to U.S. military schools and hospitals during the life of the Treaty.

Criminal jurisdiction of the United States over its nationals will be phased down during the first three years of the Treaty. Thereafter, Panama will have the right to exercise criminal jurisdiction with the understanding that it will waive jurisdiction to the United States at our request as a matter of policy. U.S. citizen employees will be entitled to procedural guarantees when tried in Panamanian courts and will be permitted to serve any sentences in the United States in accordance with reciprocal arrangement.

The Panama Canal Company employs 83 people in the United States, the bulk of them in New Orleans engaged in procurement. There will be only minor reductions in this staff and those terminated will be assisted in finding other employment, if desired, so that the impact of the Treaty on this group will not be significant.

For Canal Zone/Company employees in the Zone, efforts will be made to place those terminated with other Federal agencies in Panama. The Department of Defense is the only major employer in the area, as most other Federal agencies are small and highly specialized.

The Treaty will have little impact on DOD's own employees. Eighty percent of its civilian staff of 5,000 are non-U.S. citizens and turnover is not high among this group. U.S. citizen employees (about 100) rotate in and out of the commands so there may be some limited job opportunities among this group, but in general, placement prospects with other U.S. agencies in Panama appear quite restricted. Employment with Federal agencies in the United States or worldwide is a more meaningful alternative. The Canal Company/Zone Government plans to work closely with the U.S. Civil Service Commission to place its terminated employees in Federal agencies outside of Panama.

There are other factors that will serve to cushion the impact of the Treaty actions on Canal-related employees.

As of July 30, 1977, 115 American and 777 non-U.S. citizen employees were eligible for immediate retirement. In addition, 372 U.S. citizens and 1,216 non-US citizen employees were eligible for discontinued service retirement (involuntary separation with 20 years service at age 50 or with 25 years service at any age). Thus, a substantial portion of the Canal workforce in relation to the number to be discontinued already qualifies for some type of retirement. Measures proposed to liberalize retirement eligibility should add to this number. Additionally, many of those terminated may be eligible for unemployment compensation in the United States, depending on the rules of the individual States to which they return.

Given the number of U.S.-citizen employees to be placed in other Federal employment relative to the size of the Federal Civil Service overall, and considering the other benefits available to cushion the impact of this transition, these employment problems appear manageable.

Panamanian officials will meet with local union leaders to work out the problems of Panamanian employees of the Canal Company/Zone Government whose employment status will be changed by the Treaty. A potential troublesome problem may be the future of Panamanian employees living in the Zone. Many of those are West Indian descendants and are resented by the Panamanian public. They number only about 1500, however, and Panamanian officials believe they can handle this limited number despite popular resentments. In addition, the Embassy believes most of this group would qualify for preference visas if they opt to emigrate to the United States.

One aspect of the Treaty that will impact on employee welfare and morale is the provision for discontinuance of the hospitals, medical services and schools which the Canal Zone Government has provided for its employees. U.S. citizen employees and their dependents can use U.S. military health and educational facilities after the Treaty comes into effect. Non-American employees may use these hospitals and schools during the 30-month transition period, but after that will depend on Panamanian facilities. Because of this, the Treaty offers them the option of U.S. or Panamanian health benefits after the transition period.

In sum, actions under the Panama Canal Treaty will impact on the employment and other economic and social aspects of the human environment for the persons currently living in the Canal Zone; there are Treaty provisions and plans to implement them which seek to compensate for the adverse effects of these actions.

4. Shedding of Canal Company/Zone Service and Commercial Operations

The Annex to the Panama Canal Treaty stipulates that the Panama Canal Company/Canal Zone Government will discontinue the following commercial activities when the Treaty becomes effective:

- wholesale and retail stores;
- facilities for the production of food and drinks;
- public restaurants and cafeterias;
- recreational and amusement facilities;
- laundry and dry cleaning plants;
- service and repair facilities for private automobiles, appliances, boats, motors, furniture, etc.;
- cold storage and freezer plants;
- freight houses;
- commercial services to private vessels;
- printing services;
- maritime transport for the public;
- health and medical services to individuals;

- educational services to individuals;
- postal services;
- immigration, customs and quarantine controls not necessary for the sanitation of the Canal; and
- commercial pier and dock services.

(The police, court and prison system of the Canal Zone Government is to be discontinued within 30 months from the entry of the Treaty in force.) Transition provisions of this Annex state that the two Governments will consult prior to the discontinuance of these activities to develop arrangements for their orderly transfer and continued efficient operation or conduct by the Panamanian Government or private persons. The new Canal Commission may also continue any of these functions which are necessary for operation of the Canal in the interim until transfer arrangements can be agreed upon.

A variety of steps are being planned with regard to these activities and their facilities. Some of them will be turned over to concessionaires, while others will be transferred to the United States Forces to enable them to support U.S. citizen employees of the Canal Commission. (Depending, of course, on ratification, current planning on this latter point envisions it taking place between April and August 1978.) Still other activities will be phased out.

Placement of the staff of these activities (1,078 in FY'75) will present problems noted in the preceding section and involve many of the same arrangements.

##### 5. Integration of Utilities

Under the terms of the Treaty the United States will continue to operate the utilities providing water, electricity and communications in the Canal Zone. Details will be worked out on the maintenance of roads, walks, structures, fire protection, and public grounds except as specifically noted



elsewhere in this report. This may involve some relocation of facilities and construction. As observed above, adequate funding for maintenance of public areas is important from a health and sanitation standpoint. This concern has been recognized by the planners, and Article III, Section 5 of the Treaty stipulates that the Canal Commission will pay Panama \$10 million per year from toll revenues for these and other municipal services. This amount will be adjusted periodically for inflation.

6. Construction of a Third Lane of Locks  
or a Sea-Level Canal (Maps at Tab I)

During the duration of the Treaty, i.e., until December 31, 1999, the two Governments will jointly study the feasibility of a sea-level canal and if they agree one is needed, will negotiate the terms for its construction. The Treaty also grants the U.S. the right to add a third lane of locks to the present Canal during the life of the Treaty.

A sea-level canal might follow the line of Route 10, one of the alternatives studied by the Atlantic-Pacific Interoceanic Canal Commission in 1970. In its "Interoceanic Canal Studies - 1970" (Chapter VI) the Commission concluded that all permanent effects of construction on land areas would be limited to the immediate vicinity of the canal route and would cause no harmful ecological changes of significant magnitude. Special efforts to control tropical diseases would be necessary. With regard to the ocean environment, the Commission stated that temperature, currents and salinity changes would be small and limited to areas adjacent to the canal entrances. Spoil disposal and breakwater construction effects would be similar to those from the landfills associated with the present canal from which no harmful environmental effects had been identified. Dry land excavation would have only a nominal effect on ocean areas near the entrances; it would be unlikely that sediment flows would be in excess of those reaching the ocean naturally.

The subject of biotic interchange, the Commission's

study noted, raised more serious questions. While no harmful results had been identified from the passage of some forms of marine life through the present canal, it was recognized that linking the oceans with an unobstructed salt water channel would greatly facilitate the movement of these and other marine organisms. The Commission acknowledged widely differing views among marine biologists about the potentially undesirable consequences when closely related species (such as those from the Atlantic and Pacific sides of the Isthmus) are allowed to intermingle and about the ecological consequences of the movement of marine organisms generally.

Because of this divergency of views, the Commission had a limited study done by Battelle Memorial Institute (BMI) and the University of Miami. BMI reported it was "unable to predict specific ecological consequences of marine mixing via a sea-level canal" on the basis of the limited information then available, but found "no firm evidence to support the prediction of massive interoceanic migrations followed by widespread competition and extinction of thousands of species." Available evidence appeared "to indicate a variety of barriers to migration of species from one ocean to another and/or the subsequent establishment of successful breeding colonies in the latter." BMI believed it "highly improbable that blue water species, like the sea snake and the crown-of-thorns starfish, could get through the canal except under the most unusual circumstances." On the other hand, it was "fairly certain that some Pacific species could pass through the canal and could become locally established in the Pacific waters which would flow to the Atlantic. The Pacific species most likely to become so established would be those of estuarine and other shallow-water habitats, the very habitats that have been least thoroughly studied." BMI concluded that a comprehensive program of studies would be needed to improve the precision and reliability of these and similar ecological predictions. (Interoceanic Canal Studies - 1970, pages V-D-1,2.)

Summing this up, the Interoceanic Canal Commission concluded that "the risk of adverse ecological consequences stemming from construction and operation of a sea-level Isthmian canal appears to be acceptable." It went on to note that extensive studies would be necessary if a decision were made to proceed with construction and commissioned the National Academy of Sciences draw up such a study program.

The Academy's Committee of Ecological Research for the Interoceanic Canal reported that

"The construction of a sea-level canal in Panama is a gigantic experiment with natural ecosystems whose consequences are unforeseeable. A new canal will affect the animal and plant life of the two oceans. What these effects are cannot be determined until and unless the nature of the present differences between the biota and ecosystems of the two oceans is first carefully established through perhaps a decade of intensive research. It is imperative that studies be initiated immediately if a decision on constructing the sea-level canal, in the affirmative, is made." (Interoceanic Canal Studies - 1970, page V-E-3.)

The Committee's recommended multi-year research program would have cost \$6.7 million in its first two years and about \$2 million annually thereafter. While some limited aspects of this research have been done (See Tab K), the research program as a whole has not been carried out.

At the time the Interoceanic Canal Commission's study was published, its environmental conclusions came under criticism from a number of scientific and environmental groups. A symposium was held, sponsored by the Biological Society of Washington, the Conservation Foundation, the National Museum of Natural History, and the Smithsonian Institution, at which these views were expressed. (A summary of them is at Tab J.)

In August 1977 the White House asked the National Academy of Sciences to do an assessment of improvements in the state of knowledge since the 1970 publication of the Interoceanic Canal Study Commission concerning:

- potential migration of marine organisms through a sea-level canal;
- potential ecological effects of such migration;
- natural or man-made barriers that might mitigate the effects of such migration; and
- other potential environmental effects of a sea-level canal.

The Academy's National Research Council assembled an ad hoc committee of experts, which reported that it felt that "available data are inadequate to reach a definite conclusion concerning the overall magnitude of risk a sea-level canal would pose to the marine environment. The committee concluded, however, that the modest advances in knowledge since the (Interoceanic Canal) Commission report generally confirm the susceptibility of the region's communities to potential disruption from mixing of the Atlantic and Pacific biota... Consequently, a barrier system would be necessary to restrict migration." The committee also recommended that research be undertaken to determine the environmental effects of both a sea-level canal and of any significant modification of the existing canal. (See report at Tab K.)

There have been no studies or surveys on the environmental impact of the construction of a third lane of locks to the present canal.

It should be stressed that the Treaty commits the United States to study the feasibility of a sea-level canal, not to its construction. For this reason, alternatives to a sea-level canal are outside the scope of this Statement. They should be examined in any Environmental Impact Statement done in connection with the feasibility studies.

Such a study would include examination of economic as well as engineering feasibility, and, since it would involve issues such as the possible movement of biota between the Atlantic and Pacific Oceans, would call for the preparation of an Environmental Impact Statement. It should also be noted that there is no consideration of employing nuclear devices in the possible construction of a new canal.

#### 7. Effect of Increased Tolls

Under the Canal Treaty, Panama will receive an annual payment from toll revenues of 30 cents per ton. The 30 cents will be adjusted periodically by the Wholesale Price Index of All Manufactured Goods in the United States to reflect changes in prices. In addition, Panama will also get a fixed sum of \$10 million yearly from Canal revenues and an additional \$10 million per annum if Canal revenues permit. In any year that toll revenues do not produce a surplus to cover this latter payment, the unpaid balance will be paid from surpluses in future years in a manner to be mutually agreed. Panama will also get \$10 million annually for specified municipal services which Panama will provide the Canal operating and housing areas.

An initial toll increase in the neighborhood of 30 percent will be necessary to cover the operating costs (including the annuity payments and the payment for public services) of the Canal during the new Treaty period. The exact level of toll increases will depend on such factors as:

- the structure of the canal operation under the new Treaty, especially its operating cost requirements; and
- the short-term impact on Canal traffic of Alaskan oil shipments.

In view of these factors, a new study has been commissioned to project future Canal traffic and its sensitivity to different toll levels, taking into account the effects of the new Treaty. This study is scheduled for completion in mid-January 1978.

In 1974 and 1976 tolls were increased 25.6% and 19.5%, respectively. In April 1976 an Environmental Assessment was made in connection with these increases, which concluded that the traffic diversions resulting from them would not result in significant adverse environmental impacts in the United States (see the Report of Panel on Proposed Changes in Rates of Tolls for the Panama Canal, April, 1976 - Annex 2, at Tab L). Questions have been raised on certain aspects and applications of this report to possible situations under the Treaty, and further study is needed. Until the new study is complete, it is not possible to tell whether the environmental effects of a further toll increase will be significant or not.

#### 8. Archeological, Historic and Scenic Sites

Panamanian laws provide that archeological artifacts and sites are the property of the state, provide for their protection, and otherwise provide an adequate legal basis for safeguarding these items and places. But enforcement and a shortage of trained archeologists are problems. Deforestation and cultivation expose archeological sites, but also endanger them from looting or destruction from ignorance of their value. It seems clear that enforcement and educational efforts by both Governments, supported by interested private and international organizations, will be required if such looting and destruction is to be avoided.

The path of the proposed Panamanian road to Vera Cruz (and possibly the extension of the Inter-American highway, although the project is less definite) will be surveyed in the archeological reconnaissance which is being undertaken of military areas and the U.S. will have final approval of this route. There are no other construction plans contemplated under the Canal Treaty which might endanger archeological or historic sites. However, a reconnaissance should be done in the non-military areas of the Zone similar to the survey being done for military areas.

Contractors Hill and Summit Park lie within the Canal use area and hence will be under control and protection of the Canal Commission during the term of the Treaty.

### C. Areas of Joint Coordination

In addition to the land and water areas made available to the United States under the Treaty for the operation of the Canal and for its defense, the Treaty also provides for joint U.S.-Panamanian regimes for the management of a number of other land and water areas. These arrangements will enable the U.S. to use its influence in these bodies to ensure that future actions provide adequate environmental protection.

The areas for joint coordination fall into three major categories:

1. Military Areas of Coordination (including military housing areas listed in Tab C, page 42) will be under the U.S. control, but available for use by the armed forces of both Governments. U.S. fire prevention, safety and sanitation standards will apply in these areas. There will be joint U.S.-Panamanian military police patrols for these areas, and it is anticipated that this will result in even more effective control of trespassers, wood cutters and unauthorized hunters than is presently the case. This should result in enhanced protection to the Fort Sherman - Achiote Road area, for example.

2. A Joint Committee on Ports will coordinate activities of the Ports of Balboa and Cristobal and the operation of the Panama Railroad, which will revert to Panama under the Treaty. Under the Treaty's terms, Panama will maintain its port installations and the railroad in efficient operating condition and may not change the use of or dispose of facilities without U.S. agreement. The Joint Committee will maintain adequate safety, fire and oil pollution standards. Implementation planning is still under way, but these provisions appear adequate to ensure proper environmental safeguards. Planned construction activity is discussed in Section III.D.2. below.

3. The Regime for Coordination of Civilian Housing: Of the housing sites currently operated by the Canal Company, 13 areas - together with their sanitation and other facilities - will be covered by this arrangement. (See Tab C, page 21.) The U.S. will continue to administer the housing for U.S. citizens connected with the Canal. Housing at Rainbow City, Paraiso, and Pedro Miguel will pass to

the Panamanian Government upon entry of the Treaty into force. During the life of the Treaty, U.S.-held housing will pass to Panama on a phased basis. Canal Commission administration of the U.S. housing areas should ensure continued environmental protection as it will provide public services and utilities to these and certain other areas and will be reimbursed for them by the Panamanian Government. (See Tab C, page 6.)

D. Impacts in Panamanian Land and Water Areas

In attempting to describe the possible environmental impacts in those areas which will come under direct Panamanian administration, it should be noted that if the Treaty goes into effect, the responsibility and the authority for dealing with the environmental issues will rest with the Government of Panama. We believe it desirable nevertheless to undertake the review in this section, for several reasons. The U.S. by virtue of its present role in the Zone may have useful insights to contribute as to the environmental issues involved. The success of Panamanian measures to protect the environment in those areas which come under its administration will be of great importance to U.S. interests, including the successful continued operation of the Canal and the health of the U.S. citizens in the areas under continued U.S. administration, just as U.S. activities in areas it manages will have impacts upon Panama. An understanding of the potential environmental issues in these areas is therefore necessary to understand the range of environmental implications of the proposed action for the areas over which the U.S. will have continuing responsibility. Finally, this analysis may provide a beginning for an ongoing dialogue with the Government of Panama concerning environmental measures necessary to the pursuit of our common interests. This type of cooperation is appropriate in terms of our obligations under Section 102 (2) (F) of the National Environmental Policy Act as well as in the pursuit of our policy objectives in Panama.

1. Forest Areas and Wildlife

Continued preservation of the tropical forests and their wildlife in the present Canal Zone is one of the key elements of the environment which will be affected by the Treaty. As noted earlier, because of



restrictions on public access to the Canal Zone watershed and defense areas, much of the Zone is now an island of forest in the midst of a generally cleared country-side, which has helped preserve a wide variety of birds and animals. For these reasons, the future of these forests is ecologically important. Tracts of particular concern are the Canal Zone Forest and Wildlife Preserve (Madden Forest), Barro Colorado Island, the Pipeline Road area near Gamboa, and the Fort Sherman-San Lorenzo-Achiote Road area. (See map at Tab A.)

The proposed Treaty will affect these areas as follows:

- Madden Forest Reserve will be incorporated into the Panamanian park system, according to RENARE officials.

- Barro Colorado Island in Gatun Lake is the site of the Smithsonian Tropical Research Institute. An agreement signed September 7, 1977 designated the island and four peninsulas near it as a Nature Monument under the terms of the 1940 Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. The Agreement enters into force with the Panama Canal Treaty and remains in force as long as both Governments are parties to the 1940 Convention. An exchange of diplomatic notes on the same date designated the Institute as the custodian of the Nature Monument and authorized it to take measures necessary for the protection of the monument and its habitat. (Texts of these agreements are at Tab C, pages 55, 61 and 63.)

As part of its regular program for improving operation of the Canal, the Canal Company has plans for straightening the Canal in the area of Barro Colorado Island when the necessary funds are available. This would involve excavation and dredging at some of the islands and peninsulas near Barro Colorado.

Article V of the Agreement designating Barro Colorado Island as a Nature Monument addresses the Canal straightening proposal (and similar questions) by providing that

"In the event either Government at any time considers that the efficient opera-

tion of the Panama Canal necessitates any other action materially affecting any part of the Nature Monument, the Governments agree to consult promptly and to agree to measures necessary for the protection of the overall integrity of the Nature Monument and furtherance of the purpose of this Agreement."

In the accompanying exchange of diplomatic notes it is further provided that

"In the event that one of the Parties should attempt to take any action related to the efficient operation of the Panama Canal as provided for in Article V of our Agreement, I propose that the (Smithsonian Tropical Research) Institute, as custodian, be advised in advance and invited to comment on the potential impact of such action on the overall integrity of the Nature Monument."

The Joint Environmental Commission established under Article VI of the Canal Treaty will play an active role in this type of issue and will make environmental studies of the proposal when and if the proposal is activated.

- The U.S. Army Tropic Test Center and the 193rd Infantry Brigade currently hold three tracts along the Pipeline Road under license from the Canal Zone Government (See map at Tab M). These areas will come under Panamanian control when the Canal Treaty becomes effective.

On September 7, 1977 the U.S. and Panama concluded an Agreement on Certain Activities of the United States of America in the Republic of Panama (see Tab C, page 53) which provided that the U.S. Army Tropic Test Center could continue its activities in Panama. It is expected that under this arrangement the Center will continue to have the use of the tracts in the Pipeline Road area and to provide protection to the forests and wildlife there. RENARE, the Panamanian agency responsible for forests and national parks, would like to see this area preserved and favors

the Test Center arrangements or eventual designation of the tracts as a park or reserve.

- The Fort Sherman-San Lorenzo-Achiote Road area is forested and rich in birdlife. Under the new Canal Treaty, Fort Sherman cantonment and the area along highway S-2 will be a U.S. defense site, while the adjoining Fort Sherman training area will become a joint area of military coordination in which U.S. standards of fire prevention, safety and sanitation will apply.

While these actions will provide protection to a number of tracts of interest to environmental groups, there will be large areas (about two-thirds of the Canal Zone area) in which environmental protection will depend on Panamanian legislation and enforcement. Panamanian forestry, water, hunting and fishing laws and regulations appear to provide an adequate legal base for such protection. In addition, Panama is a party to the 1940 Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere and to the 1954 International Convention for the Prevention of Pollution of the Sea by Oil. Working cooperatively through the Joint Environmental Commission, the U.S. should be able to exert its influence for protection of the Pipeline Road and Fort Sherman forests, maintenance of high sanitary standards in the Canal operating and defense areas, prevention of oil spills and other water pollution, and preservation of the Canal watershed.

The main issue is one of the effectiveness of enforcement of these measures. In common with many developing countries, Panama is confronted with a conflict between the pressure for rapid economic development and exploitation of natural resources on the one hand and the preservation of its natural environment on the other. Under the Treaty, cooperation between the United States and Panama will be the key to reconciling these competing interests. There are environmental groups in Panama, both governmental and private, that will welcome such cooperation, but they will be in competition for limited resources with economic development interests.

In developing plans for the economic assistance loans which will accompany the Treaty, the U.S. should strengthen Panamanian institutions engaged

in promoting conservation, sanitation and the rational exploitation of that country's natural resources such as RENARE and IDAAN (the Institute for Water and Sewage). These agencies have plans for the creation of forest reserves and parks, for reforestation, and for resettling squatters moved out of the Canal watershed areas. They have requested assistance from the USAID Mission in Panama for a \$10 million loan (to be matched by an equal amount of Panamanian funds) for a watershed management project. This project responds directly to AID's new Congressional mandate to support environmental protection.

AID Washington has completed the first step in its loan procedures and has approved \$10 million in fiscal year 1978 for the project. A team of AID soil and land use specialists visited Panama in November for a feasibility study. (Until this is completed, the Project Identification Document at Tab N is the most complete description of this project available.)

The project will include protection of mature forests as well as reforestation of already denuded areas. As the Project Identification Document states: "There will be a national educational and enforcement program to stop forest destruction..."

The U.S. should also encourage other governments and international agencies to join in these efforts. Private American environmental groups can also play an important role in cooperating with and supporting Panamanian conservation organizations, public and private.

In addition to preservation of tropical forests, some areas in the Canal Zone used by migratory wild fowl for rest, feeding and water are also of environmental interest. The most important of these are the Pipeline Road area (discussed above) and the Farfan Marsh. Planned arrangements under the Treaty afford these areas the same degree of protection that they presently have. Smithsonian naturalists also note that the richest areas for water fowl are in Western Panama on the Atlantic side. These provide stopover alternatives for migrants so that loss

of these Canal Zone sites would not be critical or disastrous for these species. With regard to migrating land birds, whose numbers appear to be decreasing, less is known and areas such as the Pipeline Road could be important for their survival.

## 2. Panamanian Development Plans

The Panamanian Government has three active development projects planned for areas in the Canal Zone after the Treaty comes into force.

- A new highway is to be constructed from Panama City to Vera Cruz at a location to be agreed upon (roughly following the shoreline through Fort Kobbe and Howard Air Force Base). Since it will pass through military areas, the U.S. will have to approve its route and design (see Tab C, page 47). It will skirt the Farfan March and some archeological sites may be found along the proposed route. These interests will have to be protected before the road can be approved (see Tab A).

- There is a Panamanian proposal for a highway linking the Inter-American highway north of Panama City with Arraijan on the western side of the Canal Zone via a bridge across Miraflores Lake. It is presently inactive due to lack of funding. Since it would cross the Canal operating area and military areas of coordination, it would be subject to U.S. review (including environmental impacts) and approval before it could be built. (See Tab C, page 47.)

- A new container port is planned for the Coco Solo naval base area. Other areas for possible construction of the port were examined but rejected because of the adverse ecological impact involved. The naval base has been an operating port facility for 40 years, is located in an existing urban area, and will involve limited new construction. Consequently, there should be no serious adverse environmental effects. (See map at Tab O.)

- The Panamanian Government would also like to expand port operations in Balboa, but financing for this is lacking so that it is not possible at this time to evaluate the environmental impact of the construction this would involve.

Panamanian development plans affecting the Zone appear to have taken account of environmental concerns and to have sought to minimize adverse impacts. Their effectiveness will depend on the support they receive at political levels in the Panamanian Government and the adequacy of their funding.

### 3. Population Changes/Sanitation

In view of the continuing migration of poor peasants to urban areas in Panama, fears have been expressed that squatter settlements may be established in Canal Zone areas which will revert to Panama under the Treaty and that these will present health and sanitation problems. Concern has also been voiced about crowding in the Gamboa area with its adjacent forests and wildlife.

Panamanian planners are well aware of the squatter problem. Resettlement areas are already under way at Cerrijan, near Panama City, and others are planned at Capira and Ceremeno for squatters who will be moved out of the Canal watershed areas. Sanitation problems connected with squatter crowding are also recognized and IDAAN - the Water and Sewage Agency - has completed studies in connection with securing international loans to provide water and sewage facilities for these settlements.

Panamanian officials at RENARE and IRHE are not aware of plans for any development or other activities which would attract large numbers of people to Gamboa and they discount reports of potential crowding in the area.

An exchange of diplomatic notes on September 7, 1977 provided for future use by the Gorgas Memorial Laboratory of its buildings and other facilities and for its supply (see Tab C, page 59). This will ensure that the important work of this organization on the prevention and control of tropical diseases is continued.

### 4. Panamanian Troop Relocations

There will be only limited moves of Panamanian forces into Zone areas under the Treaty. Some small troop units and military schools will move into a part of

Fort Amador. This will involve no new construction and is within the designated capacity of the Fort. A U.S. helicopter unit will vacate one area of Albrook Airfield and a Panamanian helicopter unit will move in. The U.S. unit will move to existing Air Force facilities so that any construction related to this move will be limited. There should be no appreciable difference in the noise resulting from these operations. The Curundu antenna field will also be relocated three years after the Treaty enters into force. Surveys are under way for a new site. The site selected will determine how much clearing will be needed for the new field.

In addition to these moves, over the next two to three years elements of a Panamanian National Guard battalion will move into the facilities at Curundu flats. No new construction will be required by this shift. Consequently, Panamanian military relocation should result in no significant adverse environmental impacts.

#### IV. ALTERNATIVES TO PROPOSED ACTIONS

##### A. No Action

This option would offer the best assurance of avoiding significant environmental degradation in the Canal Zone if it could be said with confidence that such a course of action would preserve the status quo.

However, a decision not to press ahead with a treaty does not mean that there would be no change in the situation in the Canal Zone. Nationalist and extremist political forces in Panama are pressing for immediate and drastic changes in the Canal's status, and discontent in Panama will become stronger and more forceful if frustrated by the absence of a Treaty. The possibility of rioting and acts of sabotage could not be excluded. In such an atmosphere, U.S.-Panamanian cooperation would become more and more difficult. The enforcement of forest and wildlife conservation could be seriously affected. Illegal timbering in the Zone would probably increase and scientific research would be sharply limited or impossible in these circumstances.

Accordingly, it would be unrealistic to assume that this alternative would preserve or enhance the natural or human environment of the Canal Zone areas.

B. Postponement

Postponement would satisfy neither those Panamanians who support the Treaty, nor the Treaty's opponents, who want Panama to take possession of the Canal immediately. Thus, postponement would create an unstable situation, whose consequences would eventually be similar to those of taking no action.

C. Treaty Implementation with Environmental Provisions

This is the alternative presently being pursued. It provides for an orderly transition in the management of the Canal Zone, in the light of present political realities, and will also permit the U.S. Government to address the environmental issues in cooperation with the Government of Panama.

A number of specific actions undertaken in connection with the change of administrative arrangements will help to assure that adverse environmental impacts are minimized. Such actions have been detailed in the sections above. They are here summarized as a convenient checklist of recommended actions:

- A Joint Environment Commission is to be established to review implementation of the treaties to avoid or mitigate adverse environmental impacts. Its members should be of such stature that their recommendations will be effective. (Section III.A.)

- Panama grants the U.S. the right to take measures needed to ensure sanitation in areas required for the Canal's operation and defense and to make and enforce rules (including those for environmental protection) for vessels transiting the Canal. (III.B.1 and 2.)

- Public access to Canal operating areas and to defense sites and joint military areas will be restricted. (III.B.2.)

- The U.S. must approve any land use permits issued by the Panamanian Government to private or governmental organizations for use in Canal operating and housing areas, ports and some additional areas. (III.B.1.)



- Panama shall maintain port installations and equipment in Balboa and Cristobal and the Panama Railroad in efficient operating condition.

Through its role in the Joint Commission on Ports, the U.S. will be able to ensure that adequate safety, fire and oil pollution standards in these areas are observed. (III.C.2.)

- The Canal Commission is to provide services such as utilities (power, water and sewage) and maintenance of streets, walks and other public areas within the housing area. (III.B.5.; III.C.3)

- The U.S. is authorized to take a variety of measures with regard to the rivers and lakes in the Canal watershed to ensure the efficient operation of the Canal. Panama is to take measures necessary to ensure that other land and water uses in the Canal watershed do not deplete the Canal water supply. (III.B.1.; III.D.1)

- The two Governments will assist those whose jobs are displaced by Treaty actions in finding new employment. Optional retirement for affected employees will also be available on favorable terms. (III.B.3.)

- Both Governments will seek to protect the health benefit, retirement and social security rights of Canal Company and Canal Zone employees whose employment is affected by the provisions of the Treaty. (III.B.3)

- U.S. citizen employees will enjoy rights and protections similar to those of U.S. Government employees elsewhere abroad. (III.B.3.)

- In addition to these Treaty actions, an archeological survey of military areas is being undertaken. A similar reconnaissance of the rest of the Canal Zone should be done. (III.B.8.)

- Separate agreements in connection with the Treaty provide that Barro Colorado Island is to become a nature monument with the Smithsonian Tropic Research Institute as custodian. And the

work of the Gorgas Memorial Laboratory in prevention and control of tropical diseases will be continued. (III.D.1.; III.D.3.)

D. A New Treaty

Another alternative would be changes in the present Treaty or a new Treaty with stronger environmental provisions, (e.g., giving the Joint Environmental Commission greater power). To date, no serious omissions have been identified in the provisions on environmental protection of the Treaty and related agreements which would seem to require this alternative, and there is serious question whether in the present political circumstances the Panamanians would accept such a new Treaty. A new Treaty might also obligate the United States to provide assistance to Panama for promotion of environmental protection. The USAID Mission in Panama has already proposed a watershed management project and a number of water, sewage and resettlement loans are already under consideration by U.S. and international financial institutions. This approach provides greater flexibility in dealing with these problems than would efforts to spell out necessary environmental protection measures in a Treaty and should be just as effective.

V. UNAVOIDABLE ADVERSE IMPACTS

The principal unavoidable adverse impact resulting from actions under the Treaty will be the loss of jobs by certain American and non-American employees of the Canal Company and the Canal Zone Government. There are also two other possible adverse impacts: extensive deforestation in the Canal Zone, if protective measures are inadequate; and possible increase in truck and rail traffic in the U.S. due to an increase in Canal tolls. Until the new study of tolls and traffic is completed it is not possible to assess the environmental consequences of this Treaty action with any degree of confidence.

A variety of provisions in the Treaty and related agreements seek to avoid or ameliorate adverse environmental impacts in areas of sanitation, pollution control, safety and fire prevention, as well as forest and wildlife preservation. The Treaty also seeks to compensate for the loss of employment of those who will be adversely affected by its provisions.

VI. RELATIONSHIP OF SHORT-TERM USES VS. LONG-TERM PRODUCTIVITY

Short-term use of the forest resources in Panama involves slash and burn practices by squatters to clear for corn and other crops. Given population pressures and rural poverty, these subsistence crops are very important to the nutrition and welfare of the numerous squatters engaged in these practices. This is the reason for the widespread deforestation around the Canal Zone and the threat to the Zone's forests.

However, within a year or two the soil is exhausted, the squatters move on to new forest areas, and erosion sets in with resultant damage to the entire ecosystem of the Canal watershed. Wildlife disappears, reforestation is difficult or impossible, and silting of the Canal may increase. Over the longer term in combination with droughts, the level of the lakes may even diminish to the point of limiting the operation of the Canal and the Panama City water supply. Archeological sites and artifacts exposed during cultivation may also be lost.

The terms of the Treaty and related agreements together with the AID watershed management project seek to avert the adverse environmental effects of these short-term uses in favor of effective enforcement and conservation measures. These would have the long-term effect of preserving the watershed's forests and thereby protecting the Canal's water supply and that of Panama City. With proper management and reforestation, timbering can provide employment and revenues to Panama. Scientific research on the forests' flora and

fauna and exploitation of archeological sites will also be possible. These areas can also provide recreational opportunities for tourists and urban dwellers in the nearby cities.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Under the terms of the Treaty, the jobs of a number of U.S. citizens and non-American employees of the Canal Company and the Canal Zone Government will be lost. If the environmental protection measures in the Treaty and the supplementary watershed management project should prove ineffective, the forests and associated ecosystem in the Canal Zone could disappear.

VIII. CONCLUSIONS

A distinction must be drawn between environmental effects arising directly from the implementation of the proposed treaty and those effects which are anticipated in some quarters as a result of the proposed change in control over the present Canal Zone.

The direct, significant environmental effects arising from implementation of the Treaty are rather limited. The principal ones are the economic and social dislocations arising from the loss of employment with the Canal Zone/Company by a number of U.S. and Panamanian employees. Measures to mitigate these effects are incorporated in the Treaty and have been described and summarized in Section IV. C.

Those environmental effects which may be feared as a result of the change in control over the present Zone cannot even be predicted with any confidence without a full understanding of the Government of Panama's intentions and capabilities in the field of environmental protection, and they can be addressed by the United States Government only on the basis of cooperation with the Government of Panama.

The potential environmental consequences which would appear to justify the greatest concern are these:

- Deforestation of Land areas turned over to Panamanian control. This would impact upon U.S. as well as Panamanian interests because it would degrade the watershed upon which the Canal depends for its operation and result in loss of wildlife.

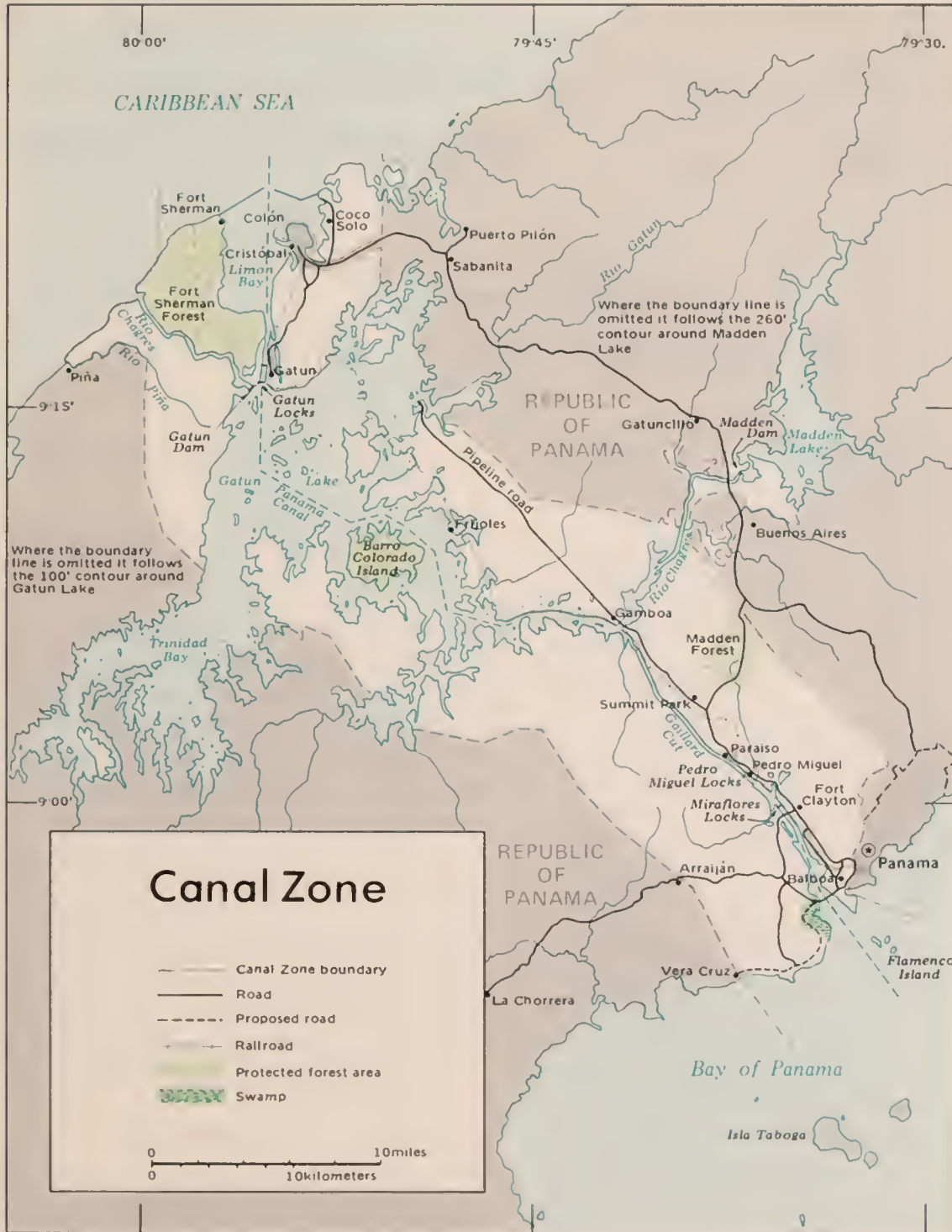
- An increase in insect-borne disease, particularly malaria, if present land maintenance and sanitation practices are not adequately funded and maintained. This would also affect U.S. residents and U.S. interests.

The measures contemplated in the Treaty to address these potential problems have been described and summarized in Section IV. C.

As has been spelled out in the body of this Statement, the choice of futures does not necessarily lie between preservation of the status quo and implementation of the proposed treaty. We can only guess at what would happen if a decision were made not to move to a new treaty relationship and this uncertainty extends to environmental consequences.

In the light of these uncertainties, no absolute assurance exists as to the environmentally soundest alternative. The proposed treaty arrangements do, however, devote considerable effort to minimize adverse environmental and social impacts of the proposed changes, and the treaty does therefore represent an environmentally sound course of action.









# The Department of State



## Selected Documents

No. 6A

Bureau of Public Affairs  
Office of Media Services

### Texts of Treaties Relating to the Panama Canal

#### PANAMA CANAL TREATY

The United States of America and the Republic of Panama,

*Acting* in the spirit of the Joint Declaration of April 3, 1964, by the Representatives of the Governments of the United States of America and the Republic of Panama, and of the Joint Statement of Principles of February 7, 1974, initialed by the Secretary of State of the United States of America and the Foreign Minister of the Republic of Panama, and

*Acknowledging* the Republic of Panama's sovereignty over its territory,

*Have decided* to terminate the prior Treaties pertaining to the Panama Canal and to conclude a new Treaty to serve as the basis for a new relationship between them and, accordingly, have agreed upon the following:

#### ARTICLE I

##### ABROGATION OF PRIOR TREATIES AND ESTABLISHMENT OF A NEW RELATIONSHIP

1. Upon its entry into force, this Treaty terminates and supersedes:

(a) The Isthmian Canal Convention between the United States of America and the Republic of Panama, signed at Washington, November 18, 1903;

(b) The Treaty of Friendship and Cooperation signed at Washington, March 2, 1936, and the Treaty of Mutual Understanding and Cooperation and the related Memorandum of Understandings Reached, signed at Panama,

January 25, 1955, between the United States of America and the Republic of Panama;

(c) All other treaties, conventions, agreements and exchanges of notes between the United States of America and the Republic of Panama concerning the Panama Canal which were in force prior to the entry into force of this Treaty; and

(d) Provisions concerning the Panama Canal which appear in other treaties, conventions, agreements and exchanges of notes between the United States of America and the Republic of Panama which were in force prior to the entry into force of this Treaty.

2. In accordance with the terms of this Treaty and related agreements, the Republic of Panama, as territorial sovereign, grants to the United States of America, for the duration of this Treaty, the rights necessary to regulate the transit of ships through the Panama Canal, and to manage, operate, maintain, improve, protect and defend the Canal. The Republic of Panama guarantees to the United States of America the peaceful use of the land and water areas which it has been granted the rights to use for such purposes pursuant to this Treaty and related agreements.

3. The Republic of Panama shall participate increasingly in the management and protection and defense of the Canal, as provided in this Treaty.

4. In view of the special relationship established by this Treaty, the United States of America and the Republic of Panama shall cooperate to assure the uninterrupted and efficient operation of the Panama Canal.

## ARTICLE II

### RATIFICATION, ENTRY INTO FORCE, AND TERMINATION

1. This Treaty shall be subject to ratification in accordance with the constitutional procedures of the two Parties. The instruments of ratification of this Treaty shall be exchanged at Panama at the same time as the instruments of ratification of the Treaty Concerning the Permanent Neutrality and Operation of the Panama Canal, signed this date, are exchanged. This Treaty shall enter into force, simultaneously with the Treaty Concerning the Permanent Neutrality and Operation of the Panama Canal, six calendar months from the date of the exchange of the instruments of ratification.

2. This Treaty shall terminate at noon, Panama time, December 31, 1999.

## ARTICLE III

### CANAL OPERATION AND MANAGEMENT

1. The Republic of Panama, as territorial sovereign, grants to the United States of America the rights to manage, operate, and maintain the Panama Canal, its complementary works, installations and equipment and to provide for the orderly transit of vessels through the Panama Canal. The United States of America accepts the grant of such rights and undertakes to exercise them in accordance with this Treaty and related agreements.

2. In carrying out the foregoing responsibilities, the United States of America may:

(a) Use for the aforementioned purposes, without cost except as provided in this Treaty, the various installations and areas (including the Panama Canal) and waters, described in the Agreement in Implementation of this Article, signed this date, as well as such other areas and installations as are made available to the United States of America under this Treaty and related agreements, and take the measures necessary to ensure sanitation of such areas;

(b) Make such improvements and alterations to the aforesaid installations and areas as it deems appropriate, consistent with the terms of this Treaty;

(c) Make and enforce all rules pertaining to the passage of vessels through the Canal and

other rules with respect to navigation and maritime matters, in accordance with this Treaty and related agreements. The Republic of Panama will lend its cooperation, when necessary, in the enforcement of such rules;

(d) Establish, modify, collect and retain tolls for the use of the Panama Canal, and other charges, and establish and modify methods of their assessment;

(e) Regulate relations with employees of the United States Government;

(f) Provide supporting services to facilitate the performance of its responsibilities under this Article;

(g) Issue and enforce regulations for the effective exercise of the rights and responsibilities of the United States of America under this Treaty and related agreements. The Republic of Panama will lend its cooperation, when necessary, in the enforcement of such rules; and

(h) Exercise any other right granted under this Treaty, or otherwise agreed upon between the two Parties.

3. Pursuant to the foregoing grant of rights, the United States of America shall, in accordance with the terms of this Treaty and the provisions of United States law, carry out its responsibilities by means of a United States Government agency called the Panama Canal Commission, which shall be constituted by and in conformity with the laws of the United States of America.

(a) The Panama Canal Commission shall be supervised by a Board composed of nine members, five of whom shall be nationals of the United States of America, and four of whom shall be Panamanian nationals proposed by the Republic of Panama for appointment to such positions by the United States of America in a timely manner.

(b) Should the Republic of Panama request the United States of America to remove a Panamanian national from membership on the Board, the United States of America shall agree to such request. In that event, the Republic of Panama shall propose another Panamanian national for appointment by the United States of America to such position in a timely manner. In case of removal of a Panamanian member of the Board at the initiative of the United States of America, both Parties will consult in advance in order to reach agreement concerning such removal, and the Republic of

Panama shall propose another Panamanian national for appointment by the United States of America in his stead.

(c) The United States of America shall employ a national of the United States of America as Administrator of the Panama Canal Commission, and a Panamanian national as Deputy Administrator, through December 31, 1989. Beginning January 1, 1990, a Panamanian national shall be employed as the Administrator and a national of the United States of America shall occupy the position of Deputy Administrator. Such Panamanian nationals shall be proposed to the United States of America by the Republic of Panama for appointment to such positions by the United States of America.

(d) Should the United States of America remove the Panamanian national from his position as Deputy Administrator, or Administrator, the Republic of Panama shall propose another Panamanian national for appointment to such position by the United States of America.

4. An illustrative description of the activities the Panama Canal Commission will perform in carrying out the responsibilities and rights of the United States of America under this Article is set forth at the Annex. Also set forth in the Annex are procedures for the discontinuance or transfer of those activities performed prior to the entry into force of this Treaty by the Panama Canal Company or the Canal Zone Government which are not to be carried out by the Panama Canal Commission.

5. The Panama Canal Commission shall reimburse the Republic of Panama for the costs incurred by the Republic of Panama in providing the following public services in the Canal operating areas and in housing areas set forth in the Agreement in Implementation of Article III of this Treaty and occupied by both United States and Panamanian citizen employees of the Panama Canal Commission: police, fire protection, street maintenance, street lighting, street cleaning, traffic management and garbage collection. The Panama Canal Commission shall pay the Republic of Panama the sum of ten million United States dollars (\$10,000,000) per annum for the foregoing services. It is agreed that every three years from the date that this Treaty enters into force, the costs involved in furnishing said services shall be reexamined to determine whether adjustment of the annual

payment should be made because of inflation and other relevant factors affecting the cost of such services.

6. The Republic of Panama shall be responsible for providing, in all areas comprising the former Canal Zone, services of a general jurisdictional nature such as customs and immigration, postal services, courts and licensing, in accordance with this Treaty and related agreements.

7. The United States of America and the Republic of Panama shall establish a Panama Canal Consultative Committee, composed of an equal number of high-level representatives of the United States of America and the Republic of Panama, and which may appoint such subcommittees as it may deem appropriate. This Committee shall advise the United States of America and the Republic of Panama on matters of policy affecting the Canal's operation. In view of both Parties' special interest in the continuity and efficiency of the Canal operation in the future, the Committee shall advise on matters such as general tolls policy, employment and training policies to increase the participation of Panamanian nationals in the operation of the Canal, and international policies on matters concerning the Canal. The Committee's recommendations shall be transmitted to the two Governments, which shall give such recommendations full consideration in the formulation of such policy decisions.

8. In addition to the participation of Panamanian nationals at high management levels of the Panama Canal Commission, as provided for in paragraph 3 of this Article, there shall be growing participation of Panamanian nationals at all other levels and areas of employment in the aforesaid commission, with the objective of preparing, in an orderly and efficient fashion, for the assumption by the Republic of Panama of full responsibility for the management, operation and maintenance of the Canal upon the termination of this Treaty.

9. The use of the areas, waters and installations with respect to which the United States of America is granted rights pursuant to this Article, and the rights and legal status of United States Government agencies and employees operating in the Republic of Panama pursuant to this Article, shall be governed by the Agreement in Implementation of this Article, signed this date.

10. Upon entry into force of this Treaty, the United States Government agencies known as the Panama Canal Company and the Canal Zone Government shall cease to operate within the territory of the Republic of Panama that formerly constituted the Canal Zone.

#### ARTICLE IV

##### PROTECTION AND DEFENSE

1. The United States of America and the Republic of Panama commit themselves to protect and defend the Panama Canal. Each Party shall act, in accordance with its constitutional processes, to meet the danger resulting from an armed attack or other actions which threaten the security of the Panama Canal or of ships transiting it.

2. For the duration of this Treaty, the United States of America shall have primary responsibility to protect and defend the Canal. The rights of the United States of America to station, train, and move military forces within the Republic of Panama are described in the Agreement in Implementation of this Article, signed this date. The use of areas and installations and the legal status of the armed forces of the United States of America in the Republic of Panama shall be governed by the aforesaid Agreement.

3. In order to facilitate the participation and cooperation of the armed forces of both Parties in the protection and defense of the Canal, the United States of America and the Republic of Panama shall establish a Combined Board comprised of an equal number of senior military representatives of each Party. These representatives shall be charged by their respective governments with consulting and cooperating on all matters pertaining to the protection and defense of the Canal, and with planning for actions to be taken in concert for that purpose. Such combined protection and defense arrangements shall not inhibit the identity or lines of authority of the armed forces of the United States of America or the Republic of Panama. The Combined Board shall provide for coordination and cooperation concerning such matters as:

(a) The preparation of contingency plans for the protection and defense of the Canal based upon the cooperative efforts of the armed forces of both Parties;

(b) The planning and conduct of combined military exercises; and

(c) The conduct of United States and Panamanian military operations with respect to the protection and defense of the Canal.

4. The Combined Board shall, at five-year intervals throughout the duration of this Treaty, review the resources being made available by the two Parties for the protection and defense of the Canal. Also, the Combined Board shall make appropriate recommendations to the two Governments respecting projected requirements, the efficient utilization of available resources of the two Parties, and other matters of mutual interest with respect to the protection and defense of the Canal.

5. To the extent possible consistent with its primary responsibility for the protection and defense of the Panama Canal, the United States of America will endeavor to maintain its armed forces in the Republic of Panama in normal times at a level not in excess of that of the armed forces of the United States of America in the territory of the former Canal Zone immediately prior to the entry into force of this Treaty.

#### ARTICLE V

##### PRINCIPLE OF NON-INTERVENTION

Employees of the Panama Canal Commission, their dependents and designated contractors of the Panama Canal Commission, who are nationals of the United States of America, shall respect the laws of the Republic of Panama and shall abstain from any activity incompatible with the spirit of this Treaty. Accordingly, they shall abstain from any political activity in the Republic of Panama as well as from any intervention in the internal affairs of the Republic of Panama. The United States of America shall take all measures within its authority to ensure that the provisions of this Article are fulfilled.

#### ARTICLE VI

##### PROTECTION OF THE ENVIRONMENT

1. The United States of America and the Republic of Panama commit themselves to implement this Treaty in a manner consistent with the protection of the natural environment of the

Republic of Panama. To this end, they shall consult and cooperate with each other in all appropriate ways to ensure that they shall give due regard to the protection and conservation of the environment.

2. A Joint Commission on the Environment shall be established with equal representation from the United States of America and the Republic of Panama, which shall periodically review the implementation of this Treaty and shall recommend as appropriate to the two Governments ways to avoid or, should this not be possible, to mitigate the adverse environmental impacts which might result from their respective actions pursuant to the Treaty.

3. The United States of America and the Republic of Panama shall furnish the Joint Commission on the Environment complete information on any action taken in accordance with this Treaty which, in the judgment of both, might have a significant effect on the environment. Such information shall be made available to the Commission as far in advance of the contemplated action as possible to facilitate the study by the Commission of any potential environmental problems and to allow for consideration of the recommendation of the Commission before the contemplated action is carried out.

## ARTICLE VII

### FLAGS

1. The entire territory of the Republic of Panama, including the areas the use of which the Republic of Panama makes available to the United States of America pursuant to this Treaty and related agreements, shall be under the flag of the Republic of Panama, and consequently such flag always shall occupy the position of honor.

2. The flag of the United States of America may be displayed, together with the flag of the Republic of Panama, at the headquarters of the Panama Canal Commission, at the site of the Combined Board, and as provided in the Agreement in Implementation of Article IV of this Treaty.

3. The flag of the United States of America also may be displayed at other places and on some occasions, as agreed by both Parties.

## ARTICLE VIII

### PRIVILEGES AND IMMUNITIES

1. The installations owned or used by the agencies or instrumentalities of the United States of America operating in the Republic of Panama pursuant to this Treaty and related agreements, and their official archives and documents, shall be inviolable. The two Parties shall agree on procedures to be followed in the conduct of any criminal investigation at such locations by the Republic of Panama.

2. Agencies and instrumentalities of the Government of the United States of America operating in the Republic of Panama pursuant to this Treaty and related agreements shall be immune from the jurisdiction of the Republic of Panama.

3. In addition to such other privileges and immunities as are afforded to employees of the United States Government and their dependents pursuant to this Treaty, the United States of America may designate up to twenty officials of the Panama Canal Commission who, along with their dependents, shall enjoy the privileges and immunities accorded to diplomatic agents and their dependents under international law and practice. The United States of America shall furnish to the Republic of Panama a list of the names of said officials and their dependents, identifying the positions they occupy in the Government of the United States of America, and shall keep such list current at all times.

## ARTICLE IX

### APPLICABLE LAWS AND LAW ENFORCEMENT

1. In accordance with the provisions of this Treaty and related agreements, the law of the Republic of Panama shall apply in the areas made available for the use of the United States of America pursuant to this Treaty. The law of the Republic of Panama shall be applied to matters or events which occurred in the former Canal Zone prior to the entry into force of this Treaty only to the extent specifically provided in prior treaties and agreements.

2. Natural or juridical persons who, on the date of entry into force of this Treaty, are engaged in business or non-profit activities at locations in the former Canal Zone may continue such business or activities at those locations

under the same terms and conditions prevailing prior to the entry into force of this Treaty for a thirty-month transition period from its entry into force. The Republic of Panama shall maintain the same operating conditions as those applicable to the aforementioned enterprises prior to the entry into force of this Treaty in order that they may receive licenses to do business in the Republic of Panama subject to their compliance with the requirements of its law. Thereafter, such persons shall receive the same treatment under the law of the Republic of Panama as similar enterprises already established in the rest of the territory of the Republic of Panama without discrimination.

3. The rights of ownership, as recognized by the United States of America, enjoyed by natural or juridical private persons in buildings and other improvements to real property located in the former Canal Zone shall be recognized by the Republic of Panama in conformity with its laws.

4. With respect to buildings and other improvements to real property located in the Canal operating areas, housing areas or other areas subject to the licensing procedure established in Article IV of the Agreement in Implementation of Article III of this Treaty, the owners shall be authorized to continue using the land upon which their property is located in accordance with the procedures established in that Article.

5. With respect to buildings and other improvements to real property located in areas of the former Canal Zone to which the aforesaid licensing procedure is not applicable, or may cease to be applicable during the lifetime or upon termination of this Treaty, the owners may continue to use the land upon which their property is located, subject to the payment of a reasonable charge to the Republic of Panama. Should the Republic of Panama decide to sell such land, the owners of the buildings or other improvements located thereon shall be offered a first option to purchase such land at a reasonable cost. In the case of non-profit enterprises, such as churches and fraternal organizations, the cost of purchase will be nominal in accordance with the prevailing practice in the rest of the territory of the Republic of Panama.

6. If any of the aforementioned persons are required by the Republic of Panama to discontinue their activities or vacate their property

for public purposes, they shall be compensated at fair market value by the Republic of Panama.

7. The provisions of paragraphs 2-6 above shall apply to natural or juridical persons who have been engaged in business or non-profit activities at locations in the former Canal Zone for at least six months prior to the date of signature of this Treaty.

8. The Republic of Panama shall not issue, adopt or enforce any law, decree, regulation, or international agreement or take any other action which purports to regulate or would otherwise interfere with the exercise on the part of the United States of America of any right granted under this Treaty or related agreements.

9. Vessels transiting the Canal, and cargo, passengers and crews carried on such vessels shall be exempt from any taxes, fees, or other charges by the Republic of Panama. However, in the event such vessels call at a Panamanian port, they may be assessed charges incident thereto, such as charges for services provided to the vessel. The Republic of Panama may also require the passengers and crew disembarking from such vessels to pay such taxes, fees and charges as are established under Panamanian law for persons entering its territory. Such taxes, fees and charges shall be assessed on a nondiscriminatory basis.

10. The United States of America and the Republic of Panama will cooperate in taking such steps as may from time to time be necessary to guarantee the security of the Panama Canal Commission, its property, its employees and their dependents, and their property, the Forces of the United States of America and the members thereof, the civilian component of the United States Forces, the dependents of members of the Forces and the civilian component, and their property, and the contractors of the Panama Canal Commission and of the United States Forces, their dependents, and their property. The Republic of Panama will seek from its Legislative Branch such legislation as may be needed to carry out the foregoing purposes and to punish any offenders.

11. The Parties shall conclude an agreement whereby nationals of either State, who are sentenced by the courts of the other State, and who are not domiciled therein, may elect to

serve their sentences in their State of nationality.

## ARTICLE X

### EMPLOYMENT WITH THE PANAMA CANAL COMMISSION

1. In exercising its rights and fulfilling its responsibilities as the employer, the United States of America shall establish employment and labor regulations which shall contain the terms, conditions and prerequisites for all categories of employees of the Panama Canal Commission. These regulations shall be provided to the Republic of Panama prior to their entry into force.

2. (a) The regulations shall establish a system of preference when hiring employees, for Panamanian applicants possessing the skills and qualifications required for employment by the Panama Canal Commission. The United States of America shall endeavor to ensure that the number of Panamanian nationals employed by the Panama Canal Commission in relation to the total number of its employees will conform to the proportion established for foreign enterprises under the law of the Republic of Panama.

(b) The terms and conditions of employment to be established will in general be no less favorable to persons already employed by the Panama Canal Company or Canal Zone Government prior to the entry into force of this Treaty, than those in effect immediately prior to that date.

3. (a) The United States of America shall establish an employment policy for the Panama Canal Commission that shall generally limit the recruitment of personnel outside the Republic of Panama to persons possessing requisite skills and qualifications which are not available in the Republic of Panama.

(b) The United States of America will establish training programs for Panamanian employees and apprentices in order to increase the number of Panamanian nationals qualified to assume positions with the Panama Canal Commission, as positions become available.

(c) Within five years from the entry into force of this Treaty, the number of United States nationals employed by the Panama Canal Commission who were previously employed by the Panama Canal Company shall be at least twenty percent less than the total number of

United States nationals working for the Panama Canal Company immediately prior to the entry into force of this Treaty.

(d) The United States of America shall periodically inform the Republic of Panama, through the Coordinating Committee, established pursuant to the Agreement in Implementation of Article III of this Treaty, of available positions within the Panama Canal Commission. The Republic of Panama shall similarly provide the United States of America any information it may have as to the availability of Panamanian nationals claiming to have skills and qualifications that might be required by the Panama Canal Commission, in order that the United States of America may take this information into account.

4. The United States of America will establish qualification standards for skills, training and experience required by the Panama Canal Commission. In establishing such standards, to the extent they include a requirement for a professional license, the United States of America, without prejudice to its right to require additional professional skills and qualifications, shall recognize the professional licenses issued by the Republic of Panama.

5. The United States of America shall establish a policy for the periodic rotation, at a maximum of every five years, of United States citizen employees and other non-Panamanian employees, hired after the entry into force of this Treaty. It is recognized that certain exceptions to the said policy of rotation may be made for sound administrative reasons, such as in the case of employees holding positions requiring certain non-transferable or non-recruitable skills.

6. With regard to wages and fringe benefits, there shall be no discrimination on the basis of nationality, sex, or race. Payments by the Panama Canal Commission of additional remuneration, or the provision of other benefits, such as home leave benefits, to United States nationals employed prior to entry into force of this Treaty, or to persons of any nationality, including Panamanian nationals who are thereafter recruited outside of the Republic of Panama and who change their place of residence, shall not be considered to be discrimination for the purpose of this paragraph.

7. Persons employed by the Panama Canal Company or Canal Zone Government prior to

the entry into force of this Treaty, who are displaced from their employment as a result of the discontinuance by the United States of America of certain activities pursuant to this Treaty, will be placed by the United States of America, to the maximum extent feasible, in other appropriate jobs with the Government of the United States in accordance with United States Civil Service regulations. For such persons who are not United States nationals, placement efforts will be confined to United States Government activities located within the Republic of Panama. Likewise, persons previously employed in activities for which the Republic of Panama assumes responsibility as a result of this Treaty will be continued in their employment to the maximum extent feasible by the Republic of Panama. The Republic of Panama shall, to the maximum extent feasible, ensure that the terms and conditions of employment applicable to personnel employed in the activities for which it assumes responsibility are no less favorable than those in effect immediately prior to the entry into force of this Treaty. Non-United States nationals employed by the Panama Canal Company or Canal Zone Government prior to the entry into force of this Treaty who are involuntarily separated from their positions because of the discontinuance of an activity by reason of this Treaty, who are not entitled to an immediate annuity under the United States Civil Service Retirement System, and for whom continued employment in the Republic of Panama by the Government of the United States of America is not practicable, will be provided special job placement assistance by the Republic of Panama for employment in positions for which they may be qualified by experience and training.

8. The Parties agree to establish a system whereby the Panama Canal Commission may, if deemed mutually convenient or desirable by the two Parties, assign certain employees of the Panama Canal Commission, for a limited period of time, to assist in the operation of activities transferred to the responsibility of the Republic of Panama as a result of this Treaty or related agreements. The salaries and other costs of employment of any such persons assigned to provide such assistance shall be reimbursed to the United States of America by the Republic of Panama.

9. (a) The right of employees to negotiate collective contracts with the Panama Canal

Commission is recognized. Labor relations with employees of the Panama Canal Commission shall be conducted in accordance with forms of collective bargaining established by the United States of America after consultation with employee unions.

(b) Employee unions shall have the right to affiliate with international labor organizations.

10. The United States of America will provide an appropriate early optional retirement program for all persons employed by the Panama Canal Company or Canal Zone Government immediately prior to the entry into force of this Treaty. In this regard, taking into account the unique circumstances created by the provisions of this Treaty, including its duration, and their effect upon such employees, the United States of America shall, with respect to them:

(a) determine that conditions exist which invoke applicable United States law permitting early retirement annuities and apply such law for a substantial period of the duration of the Treaty;

(b) seek special legislation to provide more liberal entitlement to, and calculation of, retirement annuities than is currently provided for by law.

## ARTICLE XI

### PROVISIONS FOR THE TRANSITION PERIOD

1. The Republic of Panama shall reassume plenary jurisdiction over the former Canal Zone upon entry into force of this Treaty and in accordance with its terms. In order to provide for an orderly transition to the full application of the jurisdictional arrangements established by this Treaty and related agreements, the provisions of this Article shall become applicable upon the date this Treaty enters into force, and shall remain in effect for thirty calendar months. The authority granted in this Article to the United States of America for this transition period shall supplement, and is not intended to limit, the full application and effect of the rights and authority granted to the United States of America elsewhere in this Treaty and in related agreements.

2. During this transition period, the criminal and civil laws of the United States of America



shall apply concurrently with those of the Republic of Panama in certain of the areas and installations made available for the use of the United States of America pursuant to this Treaty, in accordance with the following provisions:

(a) The Republic of Panama permits the authorities of the United States of America to have the primary right to exercise criminal jurisdiction over United States citizen employees of the Panama Canal Commission and their dependents, and members of the United States Forces and civilian component and their dependents, in the following cases:

(i) for any offense committed during the transition period within such areas and installations, and

(ii) for any offense committed prior to that period in the former Canal Zone.

The Republic of Panama shall have the primary right to exercise jurisdiction over all other offenses committed by such persons, except as otherwise provided in this Treaty and related agreements or as may be otherwise agreed.

(b) Either Party may waive its primary right to exercise jurisdiction in a specific case or category of cases.

3. The United States of America shall retain the right to exercise jurisdiction in criminal cases relating to offenses committed prior to the entry into force of this Treaty in violation of the laws applicable in the former Canal Zone.

4. For the transition period, the United States of America shall retain police authority and maintain a police force in the aforementioned areas and installations. In such areas, the police authorities of the United States of America may take into custody any person not subject to their primary jurisdiction if such person is believed to have committed or to be committing an offense against applicable laws or regulations, and shall promptly transfer custody to the police authorities of the Republic of Panama. The United States of America and the Republic of Panama shall establish joint police patrols in agreed areas. Any arrests conducted by a joint patrol shall be the responsibility of the patrol member or members representing the Party having primary jurisdiction over the person or persons arrested.

5. The courts of the United States of America and related personnel, functioning in the former Canal Zone immediately prior to the entry into

force of this Treaty, may continue to function during the transition period for the judicial enforcement of the jurisdiction to be exercised by the United States of America in accordance with this Article.

6. In civil cases, the civilian courts of the United States of America in the Republic of Panama shall have no jurisdiction over new cases of a private civil nature, but shall retain full jurisdiction during the transition period to dispose of any civil cases, including admiralty cases, already instituted and pending before the courts prior to the entry into force of this Treaty.

7. The laws, regulations, and administrative authority of the United States of America applicable in the former Canal Zone immediately prior to the entry into force of this Treaty shall, to the extent not inconsistent with this Treaty and related agreements, continue in force for the purpose of the exercise by the United States of America of law enforcement and judicial jurisdiction only during the transition period. The United States of America may amend, repeal or otherwise change such laws, regulations and administrative authority. The two Parties shall consult concerning procedural and substantive matters relative to the implementation of this Article, including the disposition of cases pending at the end of the transition period and, in this respect, may enter into appropriate agreements by an exchange of notes or other instrument.

8. During this transition period, the United States of America may continue to incarcerate individuals in the areas and installations made available for the use of the United States of America by the Republic of Panama pursuant to this Treaty and related agreements, or to transfer them to penal facilities in the United States of America to serve their sentences.

## ARTICLE XII

### A SEA-LEVEL CANAL OR A THIRD LANE OF LOCKS

1. The United States of America and the Republic of Panama recognize that a sea-level canal may be important for international navigation in the future. Consequently, during the duration of this Treaty, both Parties commit themselves to study jointly the feasibility of a

sea-level canal in the Republic of Panama, and in the event they determine that such a waterway is necessary, they shall negotiate terms, agreeable to both Parties, for its construction.

2. The United States of America and the Republic of Panama agree on the following:

(a) No new interoceanic canal shall be constructed in the territory of the Republic of Panama during the duration of this Treaty, except in accordance with the provisions of this Treaty, or as the two Parties may otherwise agree; and

(b) During the duration of this Treaty, the United States of America shall not negotiate with third States for the right to construct an interoceanic canal on any other route in the Western Hemisphere, except as the two Parties may otherwise agree.

3. The Republic of Panama grants to the United States of America the right to add a third lane of locks to the existing Panama Canal. This right may be exercised at any time during the duration of this Treaty, provided that the United States of America has delivered to the Republic of Panama copies of the plans for such construction.

4. In the event the United States of America exercises the right granted in paragraph 3 above, it may use for that purpose, in addition to the areas otherwise made available to the United States of America pursuant to this Treaty, such other areas as the two Parties may agree upon. The terms and conditions applicable to Canal operating areas made available by the Republic of Panama for the use of the United States of America pursuant to Article III of this Treaty shall apply in a similar manner to such additional areas.

5. In the construction of the aforesaid works, the United States of America shall not use nuclear excavation techniques without the previous consent of the Republic of Panama.

### ARTICLE XIII

#### PROPERTY TRANSFER AND ECONOMIC PARTICIPATION BY THE REPUBLIC OF PANAMA

1. Upon termination of this Treaty, the Republic of Panama shall assume total responsibility for the management, operation, and maintenance of the Panama Canal, which shall be turned over in operating condition and free of

liens and debts, except as the two Parties may otherwise agree.

2. The United States of America transfers, without charge, to the Republic of Panama all right, title and interest the United States of America may have with respect to all real property, including non-removable improvements thereon, as set forth below:

(a) Upon the entry into force of this Treaty, the Panama Railroad and such property that was located in the former Canal Zone but that is not within the land and water areas the use of which is made available to the United States of America pursuant to this Treaty. However, it is agreed that the transfer on such date shall not include buildings and other facilities, except housing, the use of which is retained by the United States of America pursuant to this Treaty and related agreements, outside such areas;

(b) Such property located in an area or a portion thereof at such time as the use by the United States of America of such area or portion thereof ceases pursuant to agreement between the two Parties.

(c) Housing units made available for occupancy by members of the Armed Forces of the Republic of Panama in accordance with paragraph 5(b) of Annex B to the Agreement in Implementation of Article IV of this Treaty at such time as such units are made available to the Republic of Panama.

(d) Upon termination of this Treaty, all real property and non-removable improvements that were used by the United States of America for the purposes of this Treaty and related agreements and equipment related to the management, operation and maintenance of the Canal remaining in the Republic of Panama.

3. The Republic of Panama agrees to hold the United States of America harmless with respect to any claims which may be made by third parties relating to rights, title and interest in such property.

4. The Republic of Panama shall receive, in addition, from the Panama Canal Commission a just and equitable return on the national resources which it has dedicated to the efficient management, operation, maintenance, protection and defense of the Panama Canal, in accordance with the following:

(a) An annual amount to be paid out of Canal operating revenues computed at a rate of

thirty hundredths of a United States dollar (\$0.30) per Panama Canal net ton, or its equivalency, for each vessel transiting the Canal after the entry into force of this Treaty, for which tolls are charged. The rate of thirty hundredths of a United States dollar (\$0.30) per Panama Canal net ton, or its equivalency, will be adjusted to reflect changes in the United States wholesale price index for total manufactured goods during biennial periods. The first adjustment shall take place five years after entry into force of this Treaty, taking into account the changes that occurred in such price index during the preceding two years. Thereafter, successive adjustments shall take place at the end of each biennial period. If the United States of America should decide that another indexing method is preferable, such method shall be proposed to the Republic of Panama and applied if mutually agreed.

(b) A fixed annuity of ten million United States dollars (\$10,000,000) to be paid out of Canal operating revenues. This amount shall constitute a fixed expense of the Panama Canal Commission.

(c) An annual amount of up to ten million United States dollars (\$10,000,000) per year, to be paid out of Canal operating revenues to the extent that such revenues exceed expenditures of the Panama Canal Commission including amounts paid pursuant to this Treaty. In the event Canal operating revenues in any year do not produce a surplus sufficient to cover this payment, the unpaid balance shall be paid from operating surpluses in future years in a manner to be mutually agreed.

#### ARTICLE XIV

##### SETTLEMENT OF DISPUTES

In the event that any question should arise between the Parties concerning the interpretation of this Treaty or related agreements, they shall make every effort to resolve the matter through consultation in the appropriate committees established pursuant to this Treaty and related agreements, or, if appropriate, through diplomatic channels. In the event the Parties are unable to resolve a particular matter through such means, they may, in appropriate cases, agree to submit the matter to conciliation,

mediation, arbitration, or such other procedure for the peaceful settlement of the dispute as they may mutually deem appropriate.

DONE at Washington, this 7th day of September, 1977, in duplicate, in the English and Spanish languages, both texts being equally authentic.

#### ANNEX

##### PROCEDURES FOR THE CESSATION OR TRANSFER OF ACTIVITIES CARRIED OUT BY THE PANAMA CANAL COMPANY AND THE CANAL ZONE GOVERNMENT AND ILLUSTRATIVE LIST OF THE FUNCTIONS THAT MAY BE PERFORMED BY THE PANAMA CANAL COMMISSION

1. The laws of the Republic of Panama shall regulate the exercise of private economic activities within the areas made available by the Republic of Panama for the use of the United States of America pursuant to this Treaty. Natural or juridical persons who, at least six months prior to the date of signature of this Treaty, were legally established and engaged in the exercise of economic activities in the former Canal Zone, may continue such activities in accordance with the provisions of paragraphs 2-7 of Article IX of this Treaty.

2. The Panama Canal Commission shall not perform governmental or commercial functions as stipulated in paragraph 4 of this Annex, provided, however, that this shall not be deemed to limit in any way the right of the United States of America to perform those functions that may be necessary for the efficient management, operation and maintenance of the Canal.

3. It is understood that the Panama Canal Commission, in the exercise of the rights of the United States of America with respect to the management, operation and maintenance of the Canal, may perform functions such as are set forth below by way of illustration:

- a. Management of the Canal enterprise.
- b. Aids to navigation in Canal waters and in proximity thereto.
- c. Control of vessel movement.
- d. Operation and maintenance of the locks.

e. Tug service for the transit of vessels and dredging for the piers and docks of the Panama Canal Commission.

f. Control of the water levels in Gatun, Alajuela (Madden) and Miraflores Lakes.

g. Non-commercial transportation services in Canal waters.

h. Meteorological and hydrographic services.

i. Admeasurement.

j. Non-commercial motor transport and maintenance.

k. Industrial security through the use of watchmen.

l. Procurement and warehousing.

m. Telecommunications.

n. Protection of the environment by preventing and controlling the spillage of oil and substances harmful to human or animal life and of the ecological equilibrium in areas used in operation of the Canal and the anchorages.

o. Non-commercial vessel repair.

p. Air conditioning services in Canal installations.

q. Industrial sanitation and health services.

r. Engineering design, construction and maintenance of Panama Canal Commission installations.

s. Dredging of the Canal channel, terminal ports and adjacent waters.

t. Control of the banks and stabilizing of the slopes of the Canal.

u. Non-commercial handling of cargo on the piers and docks of the Panama Canal Commission.

v. Maintenance of public areas of the Panama Canal Commission, such as parks and gardens.

w. Generation of electric power.

x. Purification and supply of water.

y. Marine salvage in Canal waters.

z. Such other functions as may be necessary or appropriate to carry out, in conformity with this Treaty and related agreements, the rights and responsibilities of the United States of America with respect to the management, operation and maintenance of the Panama Canal.

4. The following activities and operations carried out by the Panama Canal Company and the Canal Zone Government shall not be car-

ried out by the Panama Canal Commission, effective upon the dates indicated herein:

(a) Upon the date of entry into force of this Treaty:

(i) Wholesale and retail sales, including those through commissaries, food stores, department stores, optical shops and pastry shops;

(ii) The production of food and drink, including milk products and bakery products;

(iii) The operation of public restaurants and cafeterias and the sale of articles through vending machines;

(iv) The operation of movie theaters, bowling alleys, pool rooms and other recreational and amusement facilities for the use of which a charge is payable;

(v) The operation of laundry and dry cleaning plants other than those operated for official use;

(vi) The repair and service of privately owned automobiles or the sale of petroleum or lubricants thereto, including the operation of gasoline stations, repair garages and tire repair and recapping facilities, and the repair and service of other privately owned property, including appliances, electronic devices, boats, motors, and furniture;

(vii) The operation of cold storage and freezer plants other than those operated for official use;

(viii) The operation of freight houses other than those operated for official use;

(ix) The operation of commercial services to and supply of privately owned and operated vessels, including the construction of vessels, the sale of petroleum and lubricants and the provision of water, tug services not related to the Canal or other United States Government operations, and repair of such vessels, except in situations where repairs may be necessary to remove disabled vessels from the Canal;

(x) Printing services other than for official use;

(xi) Maritime transportation for the use of the general public;

(xii) Health and medical services provided to individuals, including hospitals, leprosariums, veterinary, mortuary and cemetery services;

(xiii) Educational services not for professional training, including schools and libraries;

- (xiv) Postal services;
- (xv) Immigration, customs and quarantine controls, except those measures necessary to ensure the sanitation of the Canal;
- (xvi) Commercial pier and dock services, such as the handling of cargo and passengers; and
- (xvii) Any other commercial activity of a similar nature, not related to the management, operation or maintenance of the Canal.

(b) Within thirty calendar months from the date of entry into force of this Treaty, governmental services such as:

- (i) Police;
- (ii) Courts; and
- (iii) Prison system.

5. (a) With respect to those activities or functions described in paragraph 4 above, or otherwise agreed upon by the two Parties, which

are to be assumed by the Government of the Republic of Panama or by private persons subject to its authority, the two Parties shall consult prior to the discontinuance of such activities or functions by the Panama Canal Commission to develop appropriate arrangements for the orderly transfer and continued efficient operation or conduct thereof.

(b) In the event that appropriate arrangements cannot be arrived at to ensure the continued performance of a particular activity or function described in paragraph 4 above which is necessary to the efficient management, operation or maintenance of the Canal, the Panama Canal Commission may, to the extent consistent with the other provisions of this Treaty and related agreements, continue to perform such activity or function until such arrangements can be made.

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## TREATY CONCERNING THE PERMANENT NEUTRALITY AND OPERATION OF THE PANAMA CANAL

The United States of America and the Republic of Panama have agreed upon the following:

### ARTICLE I

The Republic of Panama declares that the Canal, as an international transit waterway, shall be permanently neutral in accordance with the regime established in this Treaty. The same regime of neutrality shall apply to any other international waterway that may be built either partially or wholly in the territory of the Republic of Panama.

### ARTICLE II

The Republic of Panama declares the neutrality of the Canal in order that both in time of peace and in time of war it shall remain secure and open to peaceful transit by the vessels of all nations on terms of entire equality, so that there will be no discrimination against any nation,

or its citizens or subjects, concerning the conditions or charges of transit, or for any other reason, and so that the Canal, and therefore the Isthmus of Panama, shall not be the target of reprisals in any armed conflict between other nations of the world. The foregoing shall be subject to the following requirements:

(a) Payment of tolls and other charges for transit and ancillary services, provided they have been fixed in conformity with the provisions of Article III(c);

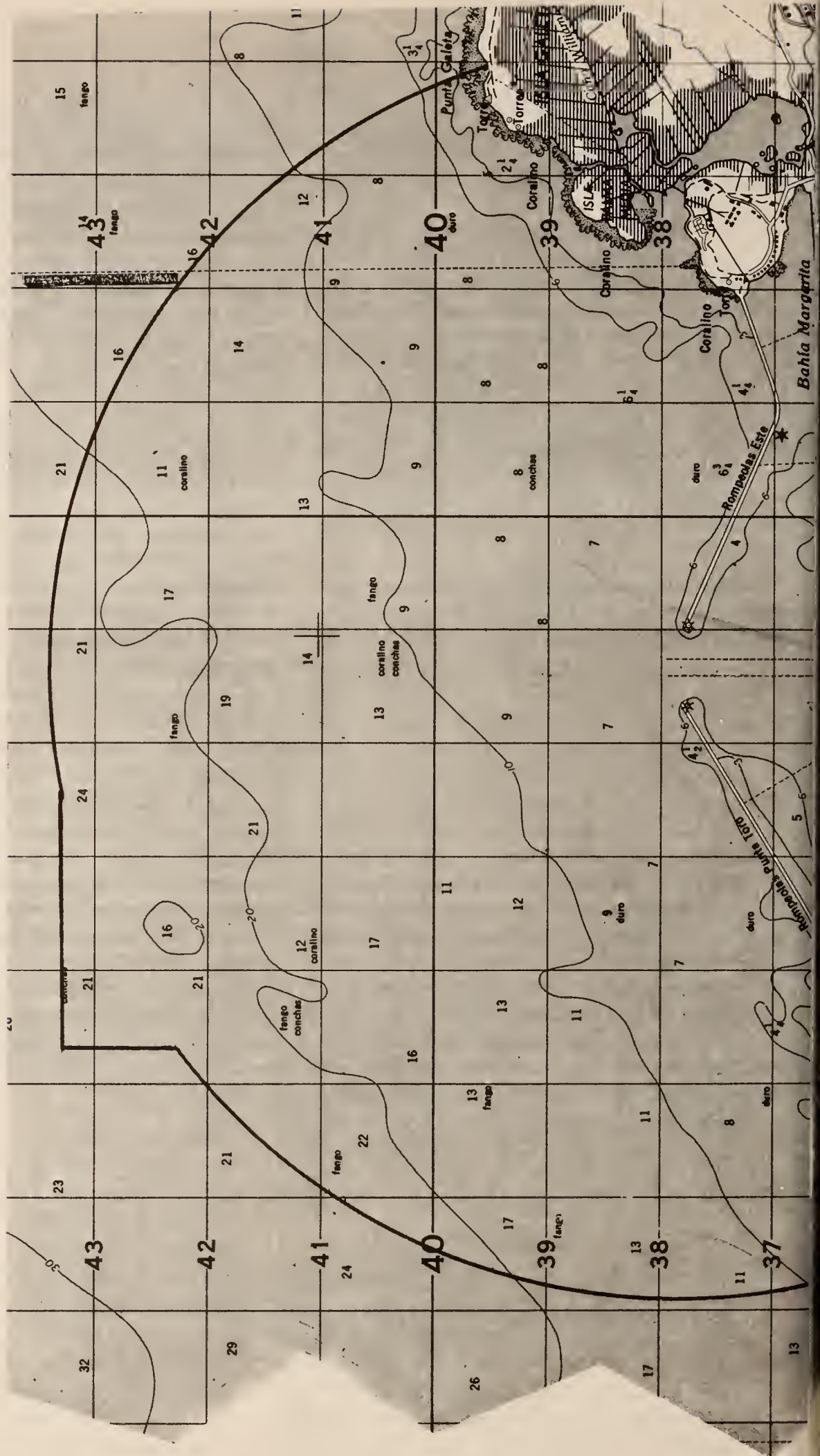
(b) Compliance with applicable rules and regulations, provided such rules and regulations are applied in conformity with the provisions of Article III;

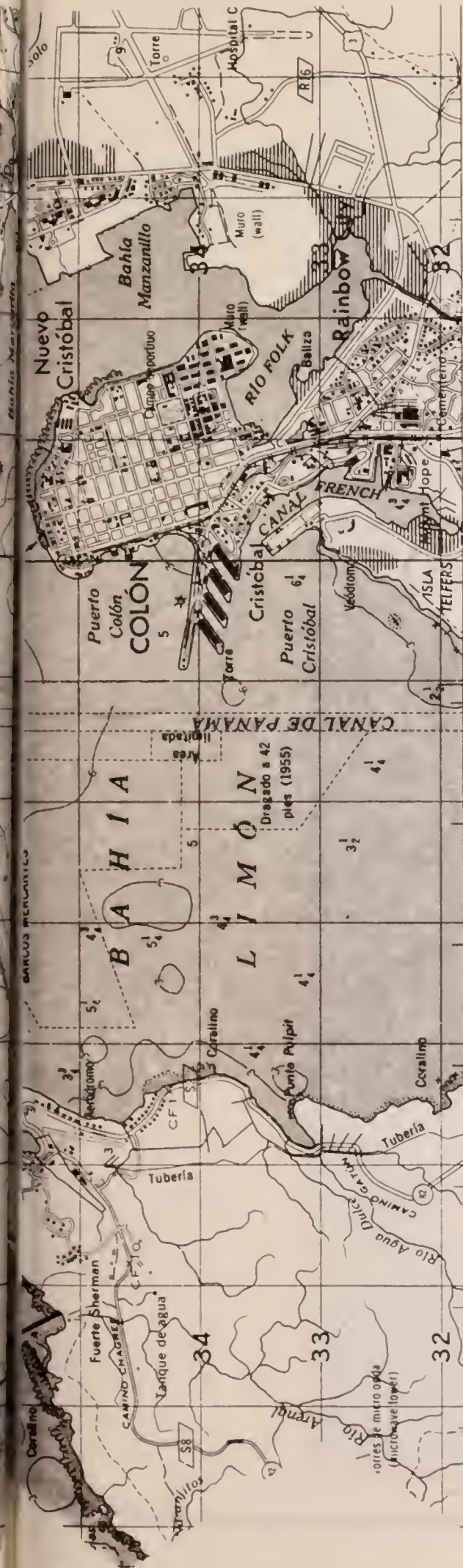
(c) The requirement that transiting vessels commit no acts of hostility while in the Canal; and

(d) Such other conditions and restrictions as are established by this Treaty.

### ARTICLE III

1. For purposes of the security, efficiency and proper maintenance of the Canal the following rules shall apply:



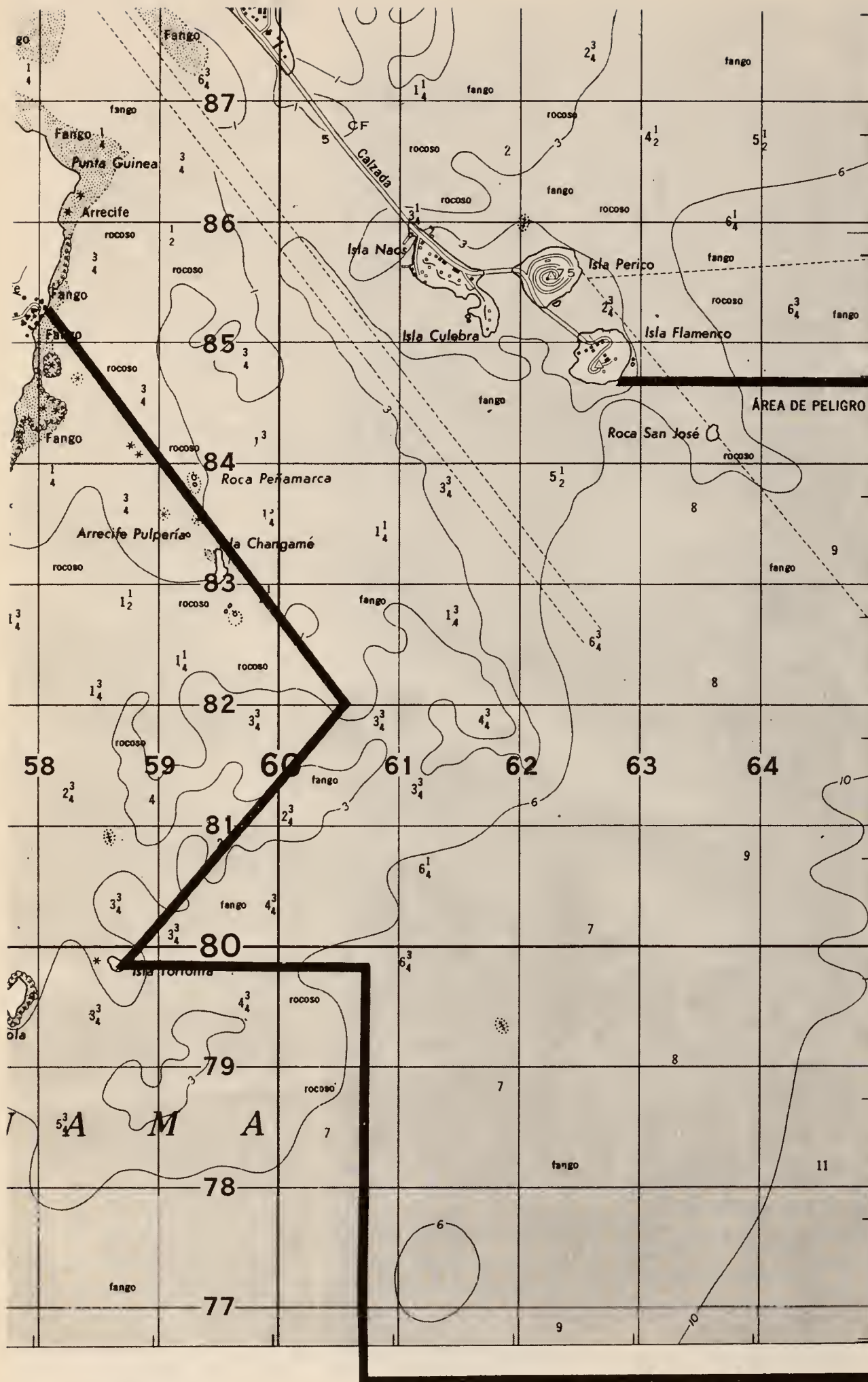


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MAP ATTACHMENT TO ANNEX "A" OF  
TREATY CONCERNING THE PERMANENT  
NEUTRALITY AND OPERATION OF THE  
PANAMA CANAL.

[ANNEX B]  
[ANEXO B]

MAPA ADJUNTO AL ANEXO A DEL  
TRATADO CONCERNIENTE A LA  
NEUTRALIDAD PERMANENTE DEL  
CANAL Y AL FUNCIONAMIENTO DEL  
CANAL DE PANAMA



ANNEX B  
ANEXO B



PROTOCOL TO THE TREATY CONCERNING THE  
PERMANENT NEUTRALITY AND OPERATION  
OF THE PANAMA CANAL

*Whereas* the maintenance of the neutrality of the Panama Canal is important not only to the commerce and security of the United States of America and the Republic of Panama, but to the peace and security of the Western Hemisphere and to the interests of world commerce as well;

*Whereas* the regime of neutrality which the United States of America and the Republic of Panama have agreed to maintain will ensure permanent access to the Canal by vessels of all nations on the basis of entire equality; and

*Whereas* the said regime of effective neutrality shall constitute the best protection for the Canal and shall ensure the absence of any hostile act against it;

The Contracting Parties to this Protocol have agreed upon the following:

ARTICLE I

The Contracting Parties hereby acknowledge the regime of permanent neutrality for the Canal established in the Treaty Concerning the Permanent Neutrality and Operation of the Panama Canal and associate themselves with its objectives.

ARTICLE II

The Contracting Parties agree to observe and respect the regime of permanent neutrality of the Canal in time of war as in time of peace, and to ensure that vessels of their registry strictly observe the applicable rules.

ARTICLE III

This Protocol shall be open to accession by all States of the world, and shall enter into force for each State at the time of deposit of its instrument of accession with the Secretary General of the Organization of American States.

**Bureau of Public Affairs  
Office of Media Services**

*Released September 1977*



# The Department of State



## Selected Documents

No. 6B

Bureau of Public Affairs  
Office of Media Services

### Documents Associated With the Panama Canal Treaties

#### Contents

##### DOCUMENTS IMPLEMENTING THE PANAMA CANAL TREATY

- |    |   |
|----|---|
| 1  | Agreement in Implementation of Article III of the Panama Canal Treaty   |
| 17 | Annex A   |
| 22 | Annex B   |
| 24 | Annex C   |
| 24 | Agreed Minute   |
| 28 | Agreement in Implementation of Article IV of the Panama Canal Treaty  |
| 42 | Annex A   |
| 44 | Annex B   |
| 46 | Annex C   |
| 46 | Annex D   |
| 47 | Agreed Minute   |
| 49 | Maps of the Land and Water Areas for the Operation and Defense of the Panama Canal, Referred to in the Agreements in Implementation of Articles III and IV of the Panama Canal Treaty [The maps are not printed here. The map atlas is deposited in the archives of the Department of State where it is available for reference.] |
| 50 | Exchange of Notes Relating to Postal Services   |
| 51 | Exchange of Notes Relating to Use of Commissary and Post Exchange Facilities  |
| 52 | Letter Describing Application of the Wholesale Price Index Referred to in Paragraph 4(A) of Article XIII of the Panama Canal Treaty   |
| 52 | Letter Regarding Termination of Article XVII of the United States-Panama Air Transport Services Agreement   |

##### OTHER DOCUMENTS

- |    |  |
|----|--|
| 53 | Agreement on Certain Activities of the United States of America in the Republic of Panama  |
| 55 | Agreement Pursuant to Article VI of the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere                          |
| 57 | Note Regarding Economic and Military Cooperation   |
| 58 | Exchange of Notes Relating to Air Traffic Control Services   |
| 58 | Note Regarding the Establishment of the Panama Bureau of the United States Foreign Broadcast Information Service                                     |
| 59 | Exchange of Notes Relating to the Gorgas Memorial Institute of Tropical and Preventive Medicine, Incorporated, and to the Gorgas Memorial Laboratory |
| 61 | Exchange of Notes Relating to Scientific Activities in Panama of the Smithsonian Tropical Research Institute   |
| 63 | Exchange of Notes Relating to Custodianship of the Barro Colorado Native Monument by the Smithsonian Tropical Research Institute                     |



## DOCUMENTS IMPLEMENTING THE PANAMA CANAL TREATY

### Agreement in Implementation of Article III of the Panama Canal Treaty

Whereas, pursuant to Article III of the Panama Canal Treaty, signed this date, the Republic of Panama, as territorial sovereign, grants to the United States of America the rights necessary to manage, operate, and maintain the Panama Canal,

The United States of America and the Republic of Panama have agreed upon the following:

#### ARTICLE I

##### DEFINITIONS

For the purposes of this Agreement it shall be understood that:

1. "Panama Canal Commission" (hereinafter referred to as "the Commission") means the agency or agencies of the Government of the United States responsible for carrying out the responsibilities and rights of the United States under the Panama Canal Treaty with respect to the management, operation, and maintenance of the Panama Canal.

2. "United States citizen employees" means (a) nationals of the United States, to whom United States passports have been issued, who are employed by the Commission and assigned for duty in the Republic of Panama (including employees of other civilian agencies of the United States who are on temporary duty with the Commission or are otherwise visiting the area on official business of the United States), and (b) other categories of persons which may be agreed upon by the two Parties.

3. "Dependents" means the spouse and children of United States citizen employees, and other relatives who depend on them for their subsistence and who habitually live with them under the same roof.

#### ARTICLE II

##### COORDINATING COMMITTEE

1. A Coordinating Committee shall be established upon the entry into force of this Agreement to be composed of one representative of the United States and one representative of the Republic of Panama, of equal authority within the Committee, each of whom may have one or more deputies, on a parity basis.

2. The Coordinating Committee shall perform the functions specifically indicated by the provisions of this Agreement, and others entrusted to it by both Governments concerning implementation of this Agreement.

3. The Coordinating Committee shall establish its rules of procedure within the spirit of this Agreement and may designate such subcommittees as it may deem necessary for the fulfillment of its functions.

4. The Coordinating Committee shall be organized so that it may meet promptly and at any time upon request of the representative of the United States or of the Republic of Panama. The Coordinating Committee shall send periodic reports on its activities to the Governments of the United States and the Republic of Panama.

5. The Coordinating Committee shall refer any matters which it has not been able to resolve to the two Governments for their consideration through appropriate channels.

#### ARTICLE III

##### USE OF LAND AND WATER AREAS

1. Canal Operating Areas: With respect to the areas and installations described in paragraph 1 of Annex A of this Agreement (hereinafter referred

to as the "Canal operating areas"), the following provisions will be applicable:

(a) The United States shall have the right to use such areas and installations for the purposes of exercising its rights and fulfilling its responsibilities, under the Panama Canal Treaty and related agreements, concerning the management, operation and maintenance of the Panama Canal, and for such other purposes as the two Parties may agree upon.

(b) The United States shall have the right to use any portion of the Canal operating areas for military training, when such use is determined by the United States to be compatible with continued efficient operation of the Panama Canal.

2. Housing Areas: The areas and installations set forth in paragraph 2 of Annex A of this Agreement (hereinafter referred to as "housing areas") shall be dedicated to the primary purpose of housing United States citizen employees and dependents. The housing areas shall be administered in accordance with the regime of civil coordination established in Article VI of this Agreement.

3. Accessory Facilities and Installations: The United States may continue to use those accessory facilities or installations used in connection with the management, operation and maintenance of the Canal on the date this Agreement enters into force, but which are located outside the areas and installations otherwise made available for the use of the United States pursuant to the Panama Canal Treaty. A description of such facilities is set forth in paragraph 3 of Annex A to this Agreement. The United States, at its expense, may maintain, improve, replace, expand or remove these facilities and installations. The United States shall have unimpeded access to these and all other facilities and installations used in connection with the management, operation, or maintenance of the Canal.

4. Anchorages: The United States shall have free and unimpeded access to and use of the anchorages described in paragraph 4 of Annex A, for the purposes of exercising its rights and fulfilling its responsibilities concerning the movement and anchoring of vessels under the Panama Canal Treaty and related agreements. The United States may own, use, operate, inspect, maintain or replace equipment, facilities and navigational aids in these areas. The United States shall have the right to increase the size of the anchorages as may be necessary or convenient, within the areas described in paragraph 5 of Annex A.

5. Special Areas: Those additional land and water areas set forth in paragraph 6 of Annex A are subject to the procedures set forth in Article IV of this Agreement in order that activities incompatible with the efficient management, operation, or maintenance of the Canal shall be precluded.

6. Annex A of this Agreement shall be examined every five years or by agreement between the two Parties, and shall be revised by exchange of notes or other instrument to reflect any agreed elimination or change in areas. The United States may notify the Republic of Panama at any time that the use of an area, or of a specified portion thereof, or other right granted by the Republic of Panama, is no longer required. Under such circumstances, such use or other right shall cease on the date determined by the two Parties.

7. (a) The United States may, at any time, remove from the Republic of Panama, or, in accordance with such conditions as may be agreed upon by the two Parties, dispose of in the Republic of Panama, any equipment, material, supplies or other removable property brought into, acquired or constructed in the Republic of Panama by or for the Commission. In case of disposal within the Republic of Panama, preference will be given to the Government of the Republic of Panama.

(b) All equipment, installations, material, supplies or removable property left by the United States in an area made available under this Agreement beyond 90 days from the date the use of such area by the United States ceases shall, unless agreed otherwise by the two Parties, become the property of the Republic of Panama.

8. The Commission may employ watchmen to protect the security of selected installations within the areas made available for the use of the United States under this Agreement, it being understood that such installations do not include housing or other installations not devoted to the management, operation or maintenance of the Panama Canal. Such watchmen shall not have powers of arrest or other general police powers. They may, however, temporarily detain persons believed to be committing or to have just committed an offense against applicable laws or regulations, and shall promptly transfer custody to the appropriate police authorities. The Commission shall provide to the authorities of the Republic of Panama through the Coordinating Committee a list identifying the individuals employed by it as watchmen, and shall promptly notify the

Republic of Panama of any changes in such list. In the performance of their duties, such watchmen shall not bear firearms except handguns.

9. The Coordinating Committee shall constitute the means of communication and information between the two Parties with regard to matters pertaining to the implementation of this Article.

#### ARTICLE IV

##### LICENSING OF OTHER LAND USES

1. Without prejudice to the rights of the United States concerning use of areas and installations within the Republic of Panama under the Panama Canal Treaty and related agreements, the areas and installations set forth in Annex A may be used for other purposes compatible with the continuous efficient management, operation and maintenance of the Panama Canal, under land use licenses to be issued by the Republic of Panama in accordance with the following procedure:

(a) The Republic of Panama shall refer to the Coordinating Committee any requests it may receive from private concerns, or from agencies of the Republic of Panama, to undertake specific activities within the areas subject to this procedure.

(b) If the United States and the Republic of Panama, acting through the Coordinating Committee, determine that the proposed use, including its terms and conditions, is compatible with the continuous efficient management, operation and maintenance of the Panama Canal, the Republic of Panama shall issue a revocable land license for the specific use agreed upon. The United States must approve the license, in writing, before it becomes effective.

2. The Republic of Panama may terminate the land license for reasons arising under its laws.

3. At any time that the United States decides that a licensed land use is no longer compatible with the continuous efficient management, operation, or maintenance of the Panama Canal, or that the licensed area is necessary for a Panama Canal Treaty-related purpose, it may withdraw its concurrence in the land license, at which time the Republic of Panama shall cause the license to be terminated.

4. In the event that the United States withdraws its concurrence in a land license issued under the

procedure established in this Article, the Republic of Panama shall take all measures necessary to ensure that the area is promptly vacated, in accordance with such rules as may be established by the two Parties through the Coordinating Committee.

5. The provisions of this Article shall not limit in any manner the authority of the United States to use the areas made available for its use under this Agreement, or to permit their use by its contractors, in the exercise of its rights and the fulfillment of its responsibilities under the Panama Canal Treaty and related Agreements.

#### ARTICLE V

##### BALBOA AND CRISTOBAL PORTS AND THE PANAMA RAILROAD

1. As provided in Article XIII of the Panama Canal Treaty, all right, title and interest of the United States in property, installations and equipment in the Ports of Balboa and Cristobal, the boundaries of which are set forth in paragraph 1 of Annex B of this Agreement, is transferred without charge to the Republic of Panama.

2. The Republic of Panama shall have the responsibility for the management, operation and maintenance of the Ports of Balboa and Cristobal, subject, however, to the following terms and conditions:

(a) The Republic of Panama shall exercise its jurisdictional rights over vessels within the lands and waters areas of the Ports of Balboa and Cristobal. Movement of vessels to or from the piers and docks of the Ports of Balboa and Cristobal shall be subject to appropriate approval by the port authorities of the Republic of Panama.

(b) The Republic of Panama grants to the United States the following technical powers: the authority and responsibility for marine traffic control within the waters of the Canal operating areas and defense sites and within the ports of Balboa and Cristobal and to or from and within the anchorages and emergency beaching areas. Such authority and responsibility of the United States includes the right to require that vessels moving in such waters be under the direction of Commission pilots.

(c) The United States may use, for the management, operation, maintenance, protection and de-

fense of the Canal, those port installations and equipment managed, operated, and maintained by the Republic of Panama which are described in paragraph 2 of Annex B of this Agreement. The Republic of Panama shall maintain such port installations and equipment in efficient operating condition.

(d) The United States is guaranteed use of the Port installations described in paragraph 3 of Annex B of this Agreement for normal maintenance of its equipment, in accordance with schedules established by the Commission or, when necessary for emergency repairs, at any time. The United States may use its employees to perform services in such installations. United States use of such installations and equipment shall be free of cost other than reimbursement for labor and services provided to the United States at rates which shall not exceed those charged the most favored customer on a commercial basis.

(e) In order to facilitate the optimum scheduling of vessel transits, the Republic of Panama shall ensure that vessels transiting the Canal receive port services at Balboa and Cristobal on a priority basis.

(f) The Republic of Panama shall control and supervise the activities to be carried out under its responsibility in the Ports of Balboa and Cristobal to ensure that such activities are compatible with the efficient management, operation, maintenance, protection and defense of the Canal. The Republic of Panama shall take the measures necessary to prevent, or to terminate, any activity that is incompatible with such purposes.

(g) In the event of emergencies relating to the protection and defense of the Canal, the Republic of Panama shall, at the request of the United States, make the installations and equipment of the Naval Industrial Reserve Shipyard available, without delay, to the United States for as long as may be necessary. In any such case, the United States shall reimburse the Republic of Panama for labor or services provided to it at rates which shall not exceed those charged the most favored customer on a commercial basis.

3. As provided in Article XIII of the Panama Canal Treaty, all right, title and interest of the United States in the property, installations and equipment of the Panama Railroad is transferred without charge to the Republic of Panama.

4. The Republic of Panama shall have the responsibility for the management, operation, and maintenance

of the Panama Railroad (hereinafter referred to as "the Railroad"), subject, however, to the following terms and conditions:

(a) The Republic of Panama shall maintain the Railroad in efficient operating condition. The Railroad will continue to provide the levels and frequency of service necessary for efficient management, operation, and maintenance, and effective protection and defense of the Canal.

(b) The United States shall have the right to use and maintain the existing installations, including the 44KV electrical transmission lines and towers, and to construct, use and maintain additional installations along the Railroad right of way, and may have access thereto for such purposes.

(c) The Republic of Panama shall permit the United States to use the Railroad and its equipment, on a priority basis, for the purposes of maintaining such transmission lines and other installations, and of transporting equipment, supplies and personnel related to the management, operation, maintenance, or protection and defense of the Canal. The United States shall pay the costs resulting from such use in accordance with rates which shall not exceed those charged by the Railroad to its most favored customer on a commercial basis.

(d) Spur tracks, sidings and related equipment serving the installations in areas made available to the United States pursuant to the Panama Canal Treaty shall remain the responsibility of the United States. Railroad access to such trackage shall be subject to the approval of the responsible United States authorities.

(e) If the Republic of Panama decides, at any time, that its continued operation of the Railroad at the minimum levels of service agreed upon by the two Parties is no longer viable, the United States shall have the right to reassume management and operation of the Railroad.

5. A Ports and Railroad Committee, to be established as a subcommittee of the Coordinating Committee in accordance with paragraph 3 of Article II of this Agreement and composed of an equal number of representatives of each Party, shall be responsible inter alia for coordination of the activities of the Panama Canal Commission and the National Port Authority of the Republic of Panama concerning the operation of the Ports of Balboa and Cristobal and the Panama Railroad, and shall have the following functions:



(a) To consider and, upon agreement, to coordinate the termination of United States rights with respect to the use of areas or installations in, or in the vicinity of, the Ports of Balboa and Cristobal which the Republic of Panama might desire to use for port activities, or with respect to the use of areas and installations appertaining to the Railroad.

(b) To consider and, upon agreement, to coordinate any change in the use of lands or waters in the Ports of Balboa and Cristobal or in areas or installations appertaining to the Railroad, or any initiation of, change in, or termination of Port or Railroad services. Consequently, changes in the use of such lands and waters and the initiation of, changes in, or termination of such services shall occur only in accordance with the decisions reached by the Ports and Railroad Committee. Until such time as the Committee agrees upon new levels and frequency of Railroad services, the levels and frequency of service scheduled for 1977 shall be maintained.

(c) To maintain adequate standards of safety, fire prevention and oil pollution. Until such time as the Committee issues new regulations, the safety, fire prevention and oil pollution standards in force prior to the entry into force of this Agreement shall remain in force.

(d) To establish procedures and mechanisms to facilitate the movement of vessels in accordance with the rights and responsibilities of the Parties set forth in paragraph 2 above.

(e) To coordinate the use by the United States of those installations specified in paragraph 3 of Annex B that are located within the Ports of Balboa and Cristobal and the activities of the National Port Authority of the Republic of Panama in these Ports.

In considering these matters, the representatives of the two Parties on the Ports and Railroad Committee shall be guided by the principle that the operation of the Ports and Railroad shall be consistent with the continued efficient management, operation, maintenance, protection and defense of the Canal.

## ARTICLE VI

### REGIME OF CIVIL COORDINATION FOR HOUSING AREAS

1. As provided in Article XIII of the Panama Canal Treaty, title to all housing within the housing

areas, owned by the Panama Canal Company immediately prior to the entry into force of this Agreement, is transferred to the Republic of Panama. The housing areas shall, however, continue to be dedicated, for the duration of this Agreement, to the primary purpose of housing employees of the Commission in accordance with the provisions of this Article.

2. The Republic of Panama hereby places at the disposal of the United States, without cost, the use of such housing, within the housing areas, as the United States may deem necessary for United States citizen employees and dependents throughout the duration of this Agreement. The United States may continue to manage, maintain, improve, rent and assign such housing for United States citizen employees and dependents.

3. The use of housing units beyond those required by the United States for housing United States citizen employees and dependents at the date of entry into force of this Agreement, shall pass to the Republic of Panama on that date. Within five years from the entry into force of this Agreement, the use of at least twenty percent of the housing units located in the former Canal Zone, formerly owned by the Panama Canal Company, shall have passed to the Republic of Panama. Thereafter, the use of additional units shall pass to the Republic of Panama in accordance with the following schedule:

(a) Within ten years from the entry into force of this Agreement, the use of a total of at least thirty percent of such units shall have passed.

(b) Within fifteen years, the use of a total of at least forty-five percent shall have passed.

(c) Within twenty years, the use of a total of at least sixty percent shall have passed.

4. In order to protect the interests and welfare of employees of the United States who are not United States citizen employees and who, on the date of entry into force of this Agreement, are occupying housing units, the use of which is transferred to the Republic of Panama, the Republic of Panama shall give such persons the following special treatment:

(a) The opportunity to occupy, by lease or rental, or in the event the Republic of Panama decides to sell, to acquire by purchase at reasonable prices, the units which they are occupying on the date of entry into force of this Agreement;

(b) In cases of purchase, the opportunity to obtain long-term financing arrangements.

(c) In cases where continued occupancy of a particular housing unit is not feasible, the opportunity to obtain other adequate housing within such areas at reasonable cost, on a preferential or priority basis.

5. In addition to housing its United States citizen employees and dependents, the United States may use the housing areas for other purposes related to the management, operation and maintenance of the Canal. The housing areas may also be used for other activities complementary to or compatible with the primary purpose of housing employees of the Commission under revocable land licenses to be issued in accordance with the procedures set forth in Article IV of this Agreement.

6. In coordination with the appropriate authorities of the Republic of Panama, the Commission may continue to provide public services such as maintenance of streets, sidewalks and other public areas within the housing areas. Since the utilities systems in the housing areas are fully integrated with those of the Canal, the Commission shall, on behalf of the utilities agencies of the Republic of Panama, continue to provide utilities such as power, water, and sewers to industrial and commercial enterprises and other persons in the area, other than United States citizen employees and dependents. The utilities agencies of the Republic of Panama shall be responsible for setting rates for and billing such customers, and shall reimburse the Commission for its cost in providing such services.

7. The Coordinating Committee shall serve as the channel for consultation and coordination between the two Parties with respect to matters arising under the regime of civil coordination established in this Article.

## ARTICLE VII

### WATER RIGHTS

1. The United States shall have unimpaired use, free of cost, of the waters of the Canal and of Alajuela (Madden), Gatun and Miraflores Lakes, and of the waters of their tributary streams, for the purposes of the management, operation and maintenance of the Panama Canal, including the generation of electric power, spilling to provide flood or pollution control, and the supplying of potable water, taking into account the needs of the Republic of Panama for potable water.

2. The United States may:

(a) Raise the surface of Alajuela (Madden) Lake to 260 feet above precise level datum (PLD) and of Gatun Lake to 100 feet above PLD, and lower the surfaces of these lakes down to elevations of 190 feet and 76 feet, respectively, for the purposes stated in paragraph 1 of this Article. The Parties shall consult and coordinate concerning the measures necessary to assure the supply of potable water to the Republic of Panama.

(b) Erect, operate, maintain, improve, expand, remove and replace rainfall and river gauging stations in the watersheds of the lakes and their tributaries, the data and information obtained from which shall be made available promptly to the Republic of Panama.

(c) Maintain and improve the saddle dams serving Gatun, Miraflores and Alajuela (Madden) Lakes and any new impoundment areas. The Republic of Panama agrees to take the necessary measures to prevent any activity that might endanger the stability of the saddle dams.

(d) Apply herbicides and conduct other water weed control and sanitation programs in the lakes, their watershed and tributaries. In the conduct of these programs the United States shall take into account the environmental protection and water standards of the Republic of Panama to the extent feasible and consistent with the efficient management, operation and maintenance of the Canal.

(e) Conduct flood control operations, to include periodic flushing of the rivers, and a routine maintenance program up to the 100 foot contour line along the Chagres River between Gamboa and Madden Dam, and up to the 30 foot contour line along the Chagres River between Gatun Dam and the Caribbean Sea.

(f) Use such land and water areas as may be necessary for the purpose of constructing new dams, including the proposed Trinidad, Manguito Point, and Panama Railroad Causeway dams, and impounding such water as may be required to develop and regulate the water supply of the Canal for the purposes stated in paragraph 1 of this Article. If new dams are constructed in accordance with this Agreement, any generation of electric power in connection with such dams shall be the prerogative of the Republic of Panama in the manner agreed upon between the two Parties.

3. The Republic of Panama shall take the necessary measures to ensure that any other land or water use

of the Canal's watershed will not deplete the water supply necessary for the continuous efficient management, operation or maintenance of the Canal, and shall not interfere with the water use rights of the United States in the Canal's watershed.

## ARTICLE VIII

### SOCIAL SECURITY

1. Concerning Social Security and retirement benefits applicable to employees of the Commission who are not United States citizen employees, the following provisions shall apply:

(a) Such persons who are employed by the Commission subsequent to the entry into force of this Agreement shall, as of their date of employment, be covered by the Social Security System of the Republic of Panama.

(b) Such persons who were employed prior to the entry into force of this Agreement by the Panama Canal Company or Canal Zone Government and who were covered under the Civil Service Retirement System of the United States shall continue to be covered by that system until their retirement or until the termination of their employment with the Commission for any other reason.

(c) The Commission shall collect and transfer in a timely manner to the Social Security System of the Republic of Panama the employer's and employees' contributions for those of its employees who are covered by the Social Security System of the Republic of Panama.

2. Concerning health benefits applicable to employees of the Commission who are not United States citizen employees and who are covered by the Civil Service Retirement System of the United States the following provisions shall apply:

(a) For the duration of a transitional period of thirty calendar months following the entry into force of this Agreement, all such persons shall continue to be provided health insurance and medical benefits under the same general arrangements in effect prior to the entry into force of this Agreement.

(b) At the termination of the aforementioned transitional period, none of the abovementioned persons shall be eligible to receive health or medical benefits from facilities operated by the United States in the Republic of Panama.

(c) Such persons shall have the right, during the aforementioned transitional period, to elect either to continue their coverage under the Federal Employees' Health Benefits Plan or to terminate their coverage under that program and enroll in the Health and Maternity Benefits Program under the Social Security System of the Republic of Panama, effective upon the termination of the transitional period.

(d) The Commission shall collect and transfer in a timely manner to the Social Security System of the Republic of Panama the employer's and employees' contributions to the Health and Maternity Benefits Program of that institution for such persons who enroll in that program. The employer's contribution shall be equal to that which the employer would have paid had the employee continued under the Federal Employees Health Benefits Plan.

3. (a) Following the entry into force of this Agreement, employees of the Panama Canal Company or Canal Zone Government, regardless of their nationality, who become employees of the Republic of Panama as the result either of a transfer of a function or activity to the Republic of Panama from the Panama Canal Company or Canal Zone Government or through job placement efforts of the Commission or the Republic of Panama, shall be covered by the Social Security System of the Republic of Panama through a special regime identical in eligibility requirements, benefits, and employer/employee contributions to the United States Civil Service Retirement System in which the employee was previously enrolled.

(b) In those instances in which an employee has been separated from employment with the Commission and is due a refund of his contributions to the Civil Service Retirement System of the United States, said refund shall, upon the written request of the employee, be transferred by the Civil Service authorities of the United States to the Social Security System of the Republic of Panama for the purpose of the employee's purchase of an equity, which shall be financially equal to the total of the amounts transferred.

(c) When such employee of the Panama Canal Company or Canal Zone Government, regardless of his nationality, is separated from his employment with the Commission as the result of the implementation of the Panama Canal Treaty and becomes an employee of the Republic of Panama as the result either of a transfer of a function or activity to the

Republic of Panama from the Panama Canal Company or the Canal Zone Government or through a job placement assistance program, and elects to purchase an equity in the Social Security System of the Republic of Panama, through a special regime identical in requirements for eligibility, benefits, and employer/employee contributions to the Civil Service Retirement System of the United States in which the employee was previously enrolled, the United States shall provide an equal sum to assist the employee in acquiring such an equity, provided, however, that:

(i) The employee is not eligible for an immediate retirement annuity under the United States Civil Service Retirement System.

(ii) The employee has not elected a deferred annuity under the United States Civil Service Retirement System.

(iii) The employee has been credited with at least five years of Federal service under the United States Civil Service Retirement System.

(iv) The employee elects to withdraw the entire amount of his capitalized contributions to the Civil Service Retirement System of the United States and transfer them to the Social Security System of the Republic of Panama.

(v) The contribution provided by the United States shall be the same as the amount withdrawn by the employee from the United States Civil Service Retirement Fund and contributed by the employee to the Panamanian Social Security System.

(d) Employees eligible for an immediate annuity under the Civil Service Retirement System of the United States shall begin to receive retirement pay at the time of their termination of their employment by the Government of the United States.

4. Except as otherwise provided in the Panama Canal Treaty or this Agreement, there shall be no loss or limitation of rights, options and benefits to which employees of the Commission who were employed by the Panama Canal Company or the Canal Zone Government may be entitled under applicable laws and regulations of the United States as a result of their participation in the Civil Service Retirement System of the United States. These rights, options and benefits include the rights, where appropriate under applicable laws and regulations of the United States, to optional or voluntary retirement, discontinued service retirement following involuntary separation, disability retirement, and deferred retirement.

5. Non-United States citizen employees of the Panama Canal Commission who were, prior to the entry into force of this Agreement, employed by the Panama Canal Company or the Canal Zone Government, and who continue to be covered by the United States Civil Service Retirement System, shall continue to be covered by United States Workmen's Compensation and may, if they so desire, continue their coverage under the Federal Employees' Group Life Insurance program in the same manner as prior to the entry into force of this Agreement.

## ARTICLE IX

### ACQUISITION OF PANAMANIAN SUPPLIES AND SERVICES

1. In procuring supplies and services, the Commission shall give preference to those obtainable in the Republic of Panama. Such preference shall apply to the maximum extent possible when such supplies and services are available as required, and are comparable in quality and price to those which may be obtained from other sources. For the comparison of prices there shall be taken into account the cost of transport to the Republic of Panama, including freight, insurance and handling, of the supplies and services which compete with Panamanian supplies and services. In the acquisition of goods in the Republic of Panama, preference shall be given to goods having a larger percentage of components of Panamanian origin.

2. Any regulations which may be necessary to carry out this preference shall be agreed upon in the Coordinating Committee.

## ARTICLE X

### TELECOMMUNICATIONS

1. The Republic of Panama, in the exercise of its sovereign power over telecommunications, authorizes the United States, for the duration of this Agreement, to use communications networks and communications-electronics installations within the Canal operating areas, and the radio frequencies authorized or in use, and transportable equipment in use, immediately prior to the entry into force of this Agreement and as may be necessary for its requirements, in order to accomplish the purposes of the management, operation and maintenance of the Canal, and as the two Parties may otherwise

agree. The Coordinating Committee may adopt regulations to govern the use of such transportable equipment outside of such areas.

2. The Republic of Panama also authorizes the United States to use installations such as those described in the preceding paragraph already existing outside the Canal operating areas, including those operated and maintained by the United States Forces or by contractors, which serve to accomplish the purposes of the management, operation or maintenance of the Canal, and as the two Parties may otherwise agree. The United States authorities shall have access to such installations for appropriate operation, maintenance and replacement.

3. Upon the termination of this Agreement, all telecommunication equipment and facilities necessary for purposes of operation of the Canal, which are the property of the United States, shall be transferred to the Republic of Panama. The United States, after consultation with the Republic of Panama, will institute a program to train Panamanian nationals to operate and maintain such telecommunications equipment, including ship-to-shore facilities.

4. Provided that they are available and suitable for the purpose, the Commission shall use, to the maximum extent practicable, the telecommunications services of public or private enterprise in the Republic of Panama in order to meet its growth needs, but the applicable rates shall be no less favorable than those charged to governmental agencies of the Republic of Panama.

5. The United States shall provide the Republic of Panama a list of all frequencies authorized or in use by it pursuant to this Article. This list shall be submitted through the Coordinating Committee in ascending frequency order and shall contain as a minimum information concerning the power, bandwidth, and type of emission being used in those frequencies.

6. The Republic of Panama undertakes not to authorize the use of any frequency which would interfere with those in use by or for the Commission or which it may use in the future in accordance with the Panama Canal Treaty and this Agreement.

7. All provisions regarding telecommunications in this Article shall be in accordance with the obligations of both Parties as members of the International Telecommunication Union and with the various relevant international agreements to which both are parties.

8. Any communication with the International Telecommunication Union regarding the subject matter of this Article shall be effected exclusively by the Republic of Panama.

9. The Coordinating Committee may adopt any further regulations as may be necessary to implement the provisions of this Article, including necessary technical coordination.

## ARTICLE XI

### CONTRACTORS AND CONTRACTORS' PERSONNEL

1. Whenever the Commission enters into contracts for the performance of services or the procurement of supplies, it shall adhere to the preferences for Panamanian sources set forth in Article IX of this Agreement.

2. Whenever contracts are awarded by the Commission to natural persons who are nationals or permanent residents of the United States or to corporations or other legal entities organized under the laws of the United States and under the effective control of such persons, such contractors shall be so designated by the United States and such designations shall be communicated to the authorities of the Republic of Panama through the Coordinating Committee. Designated contractors shall be subject to the laws and regulations of the Republic of Panama except with respect to the special regime established by this Agreement, which includes the following obligations and benefits:

(a) The contractor must engage exclusively in activities related to the execution of the work for which he has been contracted by the Commission or related to other works or activities authorized by the Republic of Panama.

(b) The contractor must refrain from carrying out practices which may constitute violations of the laws of the Republic of Panama.

(c) The contractor shall enter and depart from the territory of the Republic of Panama in accordance with procedures prescribed for United States citizen employees in Article XII of this Agreement.

(d) The contractor must obtain a document indicating his identity as a contractor which the proper authorities of the United States shall issue when they are satisfied he is duly qualified. This certificate shall be sufficient to permit him to operate under Panamanian law as a contractor of the United States. Nevertheless, the authorities of the Republic

of Panama may require the registration of the appropriate documents to establish juridical presence in the Republic of Panama.

(e) The contractor shall not be obliged to pay any tax or other assessment to the Republic of Panama on income derived under a contract with the Commission, so long as he is taxed in the United States at a rate substantially equivalent to the corresponding taxes and assessments of the Republic of Panama.

(f) The contractor may move freely within the Republic of Panama, and shall have exemptions from customs duties and other charges, as provided for United States citizen employees in Articles XIV and XVI of this Agreement.

(g) The contractor may use public services and installations in accordance with the terms and conditions of Article XIII of this Agreement and, on a non-discriminatory basis, shall pay the Republic of Panama highway tolls and taxes on plates for private vehicles.

(h) The contractor shall be exempt from any taxes imposed on depreciable assets belonging to him, other than real estate, which are used exclusively for the execution of contracts with the United States.

(i) The contractor may use the services and facilities provided for in Articles X and XVIII of the Agreement in Implementation of Article IV of the Panama Canal Treaty, signed this date, to the extent such use is authorized by the United States; provided, however, that after five years from the entry into force of this Agreement, the use of military postal services by such contractors shall be limited to that related to the execution of contracts with the United States.

3. The Commission shall withdraw the designation of a contractor when any of the following circumstances occur:

(a) Completion or termination of the contracts with the Commission.

(b) Proof that during the life of the contract such contractors have engaged in the Republic of Panama in business activities not related to their contracts with the United States nor authorized by the Republic of Panama.

(c) Proof that such contractors are engaged in practices which in the view of the Republic of Panama constitute serious violations of the laws of the Republic of Panama.

4. The authorities of the United States shall notify the authorities of the Republic of Panama whenever the designation of a contractor has been withdrawn. If, within sixty days after notification of the withdrawal of the designation of a contractor who entered the territory of the Republic of Panama in the capacity of a contractor, the authorities of the Republic of Panama require such contractor to leave its territory, the United States shall ensure that the Republic of Panama shall not incur any expense due to the cost of transportation.

5. The provisions of this Article shall similarly apply to the subcontractors and to the employees of the contractors and subcontractors and their dependents who are nationals or residents of the United States. These employees and dependents shall not be subject to the Panamanian Social Security system.

## ARTICLE XII

### ENTRY AND DEPARTURE

1. The United States may bring into the territory of the Republic of Panama United States citizen employees and dependents for the specific purposes of the Panama Canal Treaty and as the two Parties may agree upon.

2. In order to enter or leave the territory of the Republic of Panama, such persons shall be required to bear only a valid passport and a special entry/exit permit issued by the Republic of Panama. Such documentation, upon entry into or departure from the territory of the Republic of Panama, shall be presented to the appropriate authorities of the Republic of Panama.

3. Such entry/exit permits shall authorize the bearer an unlimited number of entries into and exits from the territory of the Republic of Panama for the duration of the employment or other duties with the Commission of the bearer, or of his sponsor. Such permits shall remain valid until such time as United States authorities notify the appropriate authorities of the Republic of Panama of the termination of the employment or duties with the Commission of the bearer, or of his sponsor.

4. The Republic of Panama agrees to issue such special entry/exit permits to the persons described in paragraph 1 of this Article, upon written request by the authorities of the United States, and to implement special procedures to ensure such expeditious issuance.

5. Whenever the status of any person described in paragraph 1 of this Article is altered so that he is no longer entitled to remain in the territory of the Republic of Panama, the authorities of the United States shall promptly notify the authorities of the Republic of Panama, and shall ensure that the special entry/exit permit in question is returned to the Republic of Panama. If requested by the Republic of Panama within a period of sixty days following such notice, the authorities of the United States shall ensure that transportation of any such person from the Republic of Panama will be provided at no cost to the Republic of Panama.

6. The persons described in paragraph 1 of this Article shall be exempted from fiscal charges relating to their entry, stay in, or departure from the territory of the Republic of Panama, except for nondiscriminatory charges established or which may be established for use of airports. Similarly, they shall be exempted from obligatory services established in favor of the Republic of Panama. They shall not acquire any right to permanent residence or domicile in the Republic of Panama.

7. United States citizen employees who enter the Republic of Panama to execute professional services exclusively for the United States, or on its behalf, shall not be subject to the licensing regimes of the Republic of Panama, but their professional activity shall be limited to such services with the United States for the specific purposes of the Panama Canal Treaty, or as the two Parties may otherwise agree.

#### ARTICLE XIII

##### SERVICES AND INSTALLATIONS

1. The Commission, its United States citizen employees and dependents may use the public services and installations belonging to or regulated by the Republic of Panama, and the terms and conditions of use, prices, rates and tariffs and priorities shall not be unfavorable in relation to those charged other users.

2. The Commission may use the facilities and services of the United States Forces for official purposes and may establish and operate the supporting services and facilities it requires within the areas used under this Agreement, and exceptionally, with the authorization of the Republic of Panama, outside such areas.

3. The United States may furnish to United States citizen employees and dependents the services provided for in Article XVIII of the Agreement in Implementation of Article IV of the Panama Canal Treaty signed this date, and authorize their use of the facilities provided for in Article X and Article XI of that Agreement provided, however, that their use of military postal services, commissaries, and military exchanges may not be authorized after five years from the entry into force of this Agreement.

4. The facilities and services of the Commission may be made available, exclusively for official purposes, to other agencies of the Government of the United States operating in the Republic of Panama, including the United States Forces.

#### ARTICLE XIV

##### MOVEMENT, LICENSES, AND REGISTRATION OF VESSELS, AIRCRAFT AND VEHICLES

1. (a) When in the performance of official duties, the vessels and aircraft operated by or for the Commission may move freely through Panamanian air space and waters, without the obligation of payment of taxes, tolls, landing or pier charges or other charges to the Republic of Panama except for reimbursement for specific services requested and received and without any other impediment.

(b) Such vessels and aircraft shall be exempt from customs inspections or other inspections. Whenever they carry cargo, crews or passengers who are not entitled to the exemptions provided for in this Agreement, timely notice shall be given to the appropriate authorities of the Republic of Panama. Both Parties shall adopt procedures to ensure that the customs laws and regulations of the Republic of Panama are not violated.

2. (a)(i) Similarly, the vehicles and equipment of the Commission may, when in the performance of official duties, move freely in the Republic of Panama, without the obligation of payment of taxes, tolls or other charges to the Republic of Panama and without any other impediment. Such vehicles and equipment shall be exempt from mechanical or other inspection.

(ii) Claims arising from damage caused by the Commission to the Panamanian road network outside the Canal operating areas, in excess of the usual

wear and tear by reason of time and its appropriate use, shall be settled as provided for in Article XVIII of this Agreement.

(b) Such vehicles and equipment of the Commission shall not be assessed any license or registration fees. These vehicles shall bear means of identification as may be agreed upon by the Coordinating Committee, to be issued under the authority of said Coordinating Committee and distributed by the Commission.

3. (a) The plates, individual marks and registration documents issued by the United States for vehicles, trailers, vessels and aircraft which are the property of the Commission shall be accepted by the Republic of Panama.

(b) The Republic of Panama shall recognize as sufficient the valid licenses, permits, certificates or other official classifications from the United States, possessed by operators of vehicles, vessels and aircraft which are property of the United States.

4. (a) The vehicles, trailers, vessels and aircraft belonging to the United States citizen employees or dependents shall also move freely within the Republic of Panama, in compliance with the traffic regulations and those regarding the annual mechanical inspection. The license plate fee and other obligations shall not be discriminatory.

(b) The Republic of Panama shall issue the appropriate documents of title and registration of vehicles, trailers, vessels and aircraft which are the property of United States citizen employees or dependents when the latter present title and registration issued by the federal or state authorities of the United States or by the authorities of the former Canal Zone. Applicants may retain such documents provided they leave with the authorities of the Republic of Panama a copy authenticated by the Commission, duly translated into Spanish. While the corresponding request is being processed and within a term which may not exceed ninety days after entry into force of this Agreement or after the arrival of the means of transportation mentioned above in the Republic of Panama, it may be operated with the plates or distinctive marks issued by the federal or state authorities of the United States or by the authorities of the former Canal Zone.

(c) United States citizen employees and dependents who bear valid documents such as drivers' licenses, vessel operators' permits, amateur radio

licenses, or licenses and classifications of air pilots issued by the federal or state authorities of the United States or by the authorities of the former Canal Zone, shall receive equivalent Panamanian licenses, permits and classifications without being subjected to new tests or payments of new fees. The applicants may retain the licenses, permits and classifications of the United States or the former Canal Zone provided that they leave with the authorities of the Republic of Panama a copy authenticated by the Commission and duly translated into Spanish. United States citizen employees and dependents shall be permitted to drive vehicles, vessels or aircraft in the Republic of Panama with such licenses, permits and classifications during the ninety days following the entry into force of this Agreement or their first arrival in the Republic of Panama. During this period the processing of the application in the Republic of Panama for a driver's license, vessel operator's permit, or license and classification as an air pilot shall be completed.

(d) The Panamanian licenses, permits or classifications shall be valid for the period of time indicated in the Panamanian law and, during the continuous presence of the bearer in the Republic of Panama, shall, to preserve their validity, be renewed in accordance with Panamanian laws. Whenever Panamanian laws require medical certifications for the renewal of licenses, permits or classifications, the Republic of Panama shall accept the certifications issued by the medical services of the United States, provided that said certifications are submitted in Spanish translation.

(e) The Republic of Panama shall issue drivers' licenses, vessel operators' permits, and licenses and other classifications of air pilots to United States citizen employees and dependents when they do not possess valid documents. If any test is required as a prerequisite for the issuance of the documents mentioned, the Republic of Panama shall permit the interested persons to take the examination in Spanish or in English. Any material which the Republic of Panama may generally issue in preparation for such examinations shall be furnished, in Spanish or in English, as the applicant may request. The fees for such documents shall not be discriminatory.

5. The Coordinating Committee may agree on rules and procedures that may be necessary to implement this Article.



## ARTICLE XV

## TAXATION

1. By virtue of this Agreement, the Commission, its contractors and subcontractors, are exempt from payment in the Republic of Panama of all taxes, fees or other charges on their activities or property.

2. United States citizen employees and dependents shall be exempt from any taxes, fees, or other charges on income received as a result of their work for the Commission. Similarly, they shall be exempt from payment of taxes, fees or other charges on income derived from sources outside the Republic of Panama.

3. United States citizen employees and dependents shall be exempt from taxes, fees or other charges on gifts or inheritance or on personal property, the presence of which within the territory of the Republic of Panama is due solely to the stay therein of such persons on account of their or their sponsor's work with the Commission.

4. The Coordinating Committee may establish such regulations as may be appropriate for the implementation of this Article.

## ARTICLE XVI

## IMPORT DUTIES

1. Except for the exemptions provided for in this Agreement, United States citizen employees and dependents shall be subject to the customs laws and regulations of the Republic of Panama.

2. All property imported for the official use or benefit of the Commission, including that imported by its contractors or subcontractors in connection with the various activities authorized under this Agreement, shall be exempt from the payment of all customs duties or other import taxes and charges and from all license requirements. The Commission shall issue a certificate, following the form adopted by the Coordinating Committee, stating that the property being imported is for these purposes.

3. Property consigned to or imported for the personal use of United States citizen employees or dependents shall be subject to the payment of import duties or other import taxes, except for the following:

(a) Furniture, household goods and personal effects imported by such persons for their private use within six months following their first arrival in the Republic of Panama.

(b) Vehicles imported by such persons for their

private use. The Coordinating Committee shall establish the limitations on the quantity and frequency of additional imports of vehicles and shall authorize such importation of at least one vehicle every two years.

(c) A reasonable quantity of articles for the private use of such persons, imported as personal baggage or sent into the Republic of Panama through the mails.

(d) Such other imports as may be expressly authorized by the competent authorities of the Republic of Panama at the request of the Commission.

4. The exemptions granted in paragraph 3 of this Article shall apply only to cases involving the importation of articles exempted at the time of entry and shall not be construed as obligating the Republic of Panama to reimburse customs duties and domestic taxes collected by the Republic of Panama in connection with purchases of goods from Panamanian sources subsequent to their importation.

5. Customs inspections shall not be made in the following cases:

(a) United States citizen employees travelling on official business who enter or depart from the Republic of Panama;

(b) Official documents under official seal, and mail sent through the military postal channels of the United States;

(c) Cargo consigned to the Commission.

6. Property imported under this Article and subsequently transferred to a person who is not entitled to duty-free importation shall be subject to the payment of import duties and other taxes according to the laws and regulations of the Republic of Panama.

7. All property imported in the Republic of Panama free of customs duties and other taxes pursuant to paragraphs 2 and 3 of this Article may be exported free of customs duties, export permits, export taxes, and other assessments. All property acquired in the Republic of Panama by, or in the name of, the Commission, or acquired by United States citizen employees or dependents for their private use, may be exported free of customs duties, export licenses, and other export taxes or charges.

8. The authorities of the United States agree to cooperate with the authorities of the Republic of Panama and shall take, within their legal authority, all steps necessary to prevent the abuse of the privileges granted under this Article to United States

citizen employees or dependents, which measures may include dismissal of such employees.

9. In order to prevent violations of the customs laws and regulations of the Republic of Panama, the two Parties agree as follows:

(a) The competent authorities of the United States and the authorities of the Republic of Panama shall mutually assist one another in the conduct of investigations and the collection of evidence.

(b) The authorities of the United States shall take, within their legal authority, all necessary measures to ensure that articles subject to seizure by or in the name of the customs authorities of the Republic of Panama are delivered to these authorities.

(c) The authorities of the United States shall take, within their legal authority, all necessary measures to ensure the payment by United States citizen employees, and dependents, of such import duties, taxes, and fines as may be duly determined by the authorities of the Republic of Panama.

10. Vehicles and articles belonging to the Commission that are seized from a person by the authorities of the Republic of Panama in connection with a violation of its customs or tax laws or regulations shall be delivered to the competent authorities of the Commission.

11. The Coordinating Committee will constitute the means of communication and information between the two Parties with regard to matters pertaining to the implementation of this Article.

## ARTICLE XVII

### SURVEYS

The United States may carry out topographic, hydrographic, agrologic and other surveys (including the taking of aerial photographs) within the areas made available for the use of the United States pursuant to this Agreement and within the watershed basin of Gatun, Alajuela (Madden) and Miraflores Lakes. Surveys in other areas of the Republic of Panama shall require authorization from the Republic of Panama and shall be carried out in the manner agreed upon in the Coordinating Committee. The Republic of Panama shall, at its option, designate a representative to be present during such surveys. The United States shall furnish a copy of the data resulting from such surveys to the Republic of Panama at no cost.

## ARTICLE XVIII

### CLAIMS

1. (a) Each Party shall settle claims against it for damage to any property owned and used by the other Party in the following circumstances:

(i) If the damage was caused by an employee of the Government, against which the claim is made, in the performance of his official duties; or

(ii) If the damage arose from the use of any vehicle, vessel or aircraft owned and used by the said Government, provided either that the vehicle, vessel or aircraft causing the damage was being used for official purposes, or that the damage was caused to property being so used.

(b) If it is not settled in due course, the claim may be pursued through diplomatic channels. Both Parties hereby waive the collection of any claims for an amount less than B/. 1400 or \$1400 U.S., whichever may be the currency of greater value.

2. In cases of maritime salvage, each Party waives its claims against the other if the vessel or cargo salvaged was the property of the other Party and was used for official purposes.

3. For the purposes of this Article, any vessel chartered, requisitioned or seized in prize by a Party shall be considered its property (except to the extent that the risk of loss or liability is assumed by some other person than such Party).

4. United States citizen employees shall be subject to the jurisdiction of the civil courts of the Republic of Panama except in matters which arise from the performance of their official duty. In cases in which payment has been accepted in full satisfaction of the claim, the civil courts of the Republic of Panama shall dismiss any proceeding concerning such matter.

5. Non-contractual claims arising from damages caused in the performance of their official duties by employees of the Commission to third parties shall be presented by the injured party through the Coordinating Committee to the appropriate authorities of the Commission for settlement. The authorities of the Republic of Panama may submit advice and recommendations on Panamanian law to the claims authorities of the Commission for their use in evaluating liability and amount of damages. The Commission shall assure payment of the appropriate damages, if any are due.

6. Contractual claims against the Commission shall be settled in accordance with the dispute clause of the contracts, and in the absence of such clause, through presentation of claims to the Commission.

7. The Commission shall require contractors and subcontractors referred to in Article XI of this Agreement to obtain appropriate insurance to cover the civil liabilities that may be incurred in the territory of the Republic of Panama as a result of acts or omissions done in the performance of official duty by their employees. The Coordinating Committee shall establish the general standards for such insurance.

8. The authorities of both Parties shall cooperate in the investigation and procurement of evidence for a fair disposition of claims under this Article.

## ARTICLE XIX

### CRIMINAL JURISDICTION

1. The Republic of Panama shall exercise, in the manner herein indicated, its jurisdiction over United States citizen employees and dependents with respect to all offenses arising from acts or omissions committed by them within the territory of the Republic of Panama and punishable under the laws of the Republic of Panama.

2. Concerning offenses committed by United States citizen employees or dependents that are punishable under the laws of both Parties, the authorities of the United States may request the Republic of Panama to waive its jurisdiction in favor of the authorities of the United States. Said authorities shall, in their request, state the reasons therefor, and the Republic of Panama shall give favorable consideration to such requests in the following cases:

(a) If the offense arises out of an act or omission done in the performance of official duty. In such cases, when requested by the authorities of the Republic of Panama or when the authorities of the United States may deem it necessary, the latter shall issue a certificate establishing that the offense originated from an act or omission occurring in the performance of official duty. The Republic of Panama shall consider this certificate as sufficient proof for the purposes of this paragraph, or shall request a review by the Coordinating Committee, within ten days of the date of receipt of the certificate. The Coordinating Committee shall complete its review within ten days from the date of receipt of the re-

quest, except when more thorough consideration may be necessary, in which case the Coordinating Committee shall complete its review within thirty days. A substantial deviation from the duties which a person is required to perform in a specific mission shall generally indicate an act or omission not occurring in the performance of official duty and, consequently, the authorities of the United States will not consider it necessary to issue a certificate of official duty.

(b) If the offense is solely against the property or security of the United States and is committed in a Canal operating area or in a housing area. It is understood that offenses against the security of the United States include: treason or sabotage against the United States, espionage or violation of any law relating to official secrets of the United States or to secrets relating to the national defense of the United States.

3. In any case in which the authorities of the Republic of Panama waive jurisdiction to the United States, or in cases in which the offense constitutes a crime under the laws of the United States, but not under the laws of the Republic of Panama, the accused United States citizen employee or dependent shall be tried outside of the territory of the Republic of Panama.

4. (a) The authorities of the Republic of Panama shall notify the authorities of the United States as promptly as possible of the arrest of any United States citizen employee or dependent.

(b) The following procedures shall govern the custody of an accused United States citizen employee or dependent over whom the Republic of Panama is to exercise its jurisdiction:

(i) If the accused is detained by the authorities of the Republic of Panama he shall, except when charged with murder, rape, robbery with violence, trafficking in drugs, or crimes against the security of the Panamanian State, be handed over on request to the authorities of the United States in whose custody he shall remain until completion of all judicial proceedings and thereafter until custody is requested by authorities of the Republic of Panama for the execution of a sentence.

(ii) When charged with murder, rape, robbery with violence, trafficking in drugs, or crimes against the security of the Panamanian State, the accused will remain in the custody of the authorities of the Republic of Panama. In these cases, the authorities

of the Republic of Panama shall give sympathetic consideration to requests for custody by the authorities of the United States.

5. (a) The authorities of the United States shall give full consideration to special requests made by the authorities of the Republic of Panama regarding conditions of custody of any detainee in the custody of the United States.

(b) When the accused is in the custody of the authorities of the United States, he must, upon request by the authorities of the Republic of Panama, be made available to them for the purposes of investigation and trial. This obligation of the United States to ensure the appearance of an accused United States citizen employee, or dependent shall be deemed to satisfy the bail requirement set by the laws of the Republic of Panama.

6. (a) The authorities of the United States and of the Republic of Panama shall assist each other in carrying out all necessary investigations of offenses and in the collection and production of evidence, including the seizure and, in proper cases, the delivery of objects connected with an offense and the appearance of witnesses as necessary.

(b) The authorities of the United States and of the Republic of Panama shall, upon request by the other Party, inform each other of the status of cases referred to under the provisions of this Article.

7. As is provided in the laws of the Republic of Panama, a United States citizen employee or a dependent who has been convicted by a Panamanian court shall not be subject to the death penalty or to any form of cruel and unusual punishment or treatment.

8. When an accused United States citizen employee or dependent has been tried in accordance with the provisions of this Article by the authorities of the United States or by the authorities of the Republic of Panama and has been acquitted, or has been convicted and is serving, or has served, his sentence, or has been pardoned, he shall not be tried again for the same offense within the territory of the Republic of Panama.

9. Whenever an accused United States citizen employee or a dependent is tried by the authorities of the Republic of Panama he shall be entitled to the procedural guarantees listed in Annex C of this Agreement.

10. During the detention by the authorities of the Republic of Panama of a United States citizen em-

ployee or a dependent the authorities of the Republic of Panama shall permit members of his immediate family to visit him weekly. Material and medical assistance (such as food, clothing and comfort items) which the authorities of the United States and members of his immediate family may consider desirable, and any other assistance which is in accordance with or allowed by Panamanian prison regulations may be provided to him on such visits.

11. The Coordinating Committee will constitute the channel of communication and information between the two Parties with regard to matters pertaining to the implementation of this Article.

## ARTICLE XX

### GENERAL PROVISIONS

1. The activities of the United States in the Republic of Panama shall be carried out with adequate attention to public health and safety, and consequently, within the areas made available for the use of the United States under this Agreement, the authorities of the United States shall have the right to take appropriate sanitation measures. The authorities of the United States shall cooperate with the authorities of the Republic of Panama for these purposes.

2. United States citizen employees and dependents may bear private arms in accordance with applicable Panamanian laws and regulations.

3. The Commission shall establish regulations to provide for the handling of matters under its competence in the English and Spanish languages, as appropriate.

## ARTICLE XXI

### DURATION

This Agreement shall enter into force simultaneously with the entry into force of the Panama Canal Treaty, signed this date, and shall remain in force throughout the period that the aforesaid Treaty remains in force.

DONE at Washington, this 7th day of September, 1977, in duplicate, in the English and Spanish languages, both being equally authentic.

## ANNEX A

## CANAL OPERATING AREAS, HOUSING AREAS, ACCESSORY FACILITIES AND INSTALLATIONS, AND ANCHORAGES

The Canal operating areas, housing areas, accessory facilities and installations, and anchorages, the use of which is made available by the Republic of Panama to the United States by this Agreement, are described below and identified, but not definitively, on the maps attached hereto and referenced herein. When areas or installations are depicted on more than one map of different scales, the identification on the map with the largest scale shall be controlling. More precise identifications and exact boundaries shall be agreed upon as soon as practicable by the Coordinating Committee established in Article II of this Agreement, after a joint survey to be conducted by representatives of the two Parties. When the aforementioned identifications have been completed and agreed upon, they shall be controlling as to the boundaries of the installations and areas described in this Annex.

1. (a) The Canal operating areas are described generally as follows:

(i) A continuous area generally following the course of the Panama Canal and generally contiguous to it, running from the Atlantic Ocean to the Pacific Ocean, and including the Atlantic entrance, Gatun Locks, dam, spillway and power station, portions of Gatun Lake, Gaillard Cut, Pedro Miguel Locks, Miraflores Lake, Miraflores Locks, spillway, filtration plant and power station, and the Pacific entrance, as well as the land and water areas encompassing them.

(ii) Certain areas not contiguous to the Canal, including the Brazos Brook area, the Gtun tank area, the Madden Dam and power station area, the Corozal/Cardenas area, and the Sosa hill area.

The Canal operating area described generally above, with the two exceptions hereinafter referred to, is identified on the map which is attached hereto as Attachment No. 1 in the manner indicated on the legend thereof. Although not so identified on the referenced map, the land and water areas which lie beneath the Thatcher Ferry Bridge and any new bridge that is constructed along the Panama/Arraijan right of way, to the extent that they are within the boundaries of the Canal operating area

described in subparagraph 1(a)(i), above, are included in, and are parts of, that Canal operating area.

(iii) Barro Colorado Island, in the event and at such time as the Smithsonian Tropical Research Institute or an organization of similar purpose discontinues its activities there. This island is identified by name on the map attached hereto as Attachment No. 1.

(iv) Summit Naval Radio Station, at such time as use of the area is no longer required by the United States Forces. For purposes of this provision, this area is identified by name on the map attached hereto as Attachment No. 1.

(b) The Canal Zone Penitentiary shall cease to be a part of the Canal operating areas three years following the entry into force of this Agreement. For the purposes of this provision, the approximate center of this area is located at Coordinate 441069 on the map attached hereto as Attachment No. 1.

(c) The following areas shall cease to be a part of the Canal operating area five years following the entry into force of this Agreement:

- (i) The Mount Hope warehouse area; and
- (ii) The Mount Hope motor transportation area.

For the purposes of this provision, the Mount Hope warehouse area is identified on the map attached hereto as Attachment No. 2, SK 529-25-14A, in the manner indicated on the legend thereof, and the Mount Hope motor transportation area is identified on the map attached hereto as Attachment No. 3, SK 529-25-13A, in the manner indicated on the legend thereof.

(d) The following installations not contiguous to the Canal operating areas described in subparagraph 1(a) above shall be subject to the provisions of the Panama Canal Treaty and this Agreement applicable to the Canal operating areas:

- (i) Retirement Office (449-X);
- (ii) Sanitation Buildings (428, 428-X);
- (iii) Health Bureau Official Quarters (286, 288, 286-G);
- (iv) Pump House, Chilled Water (278);
- (v) Treasurer's Office (287, 287-X);
- (vi) Central Employment Office (363);
- (vii) Payroll Branch Office (365);
- (viii) Personnel Bureau Office (366);
- (ix) Grounds Maintenance Building (361);

- (x) Distribution Substation (367);
- (xi) District Court Building (310);
- (xii) Community Welfare (Red Cross) (0610-B);
- (xiii) Motor Transportation Facilities (0625-A through K, 0630-C);
- (xiv) Grounds Maintenance Office (0630-B);
- (xv) Sewage Treatment Plant (0626, 0626-A, 0626-B);
- (xvi) Grounds Maintenance Building (0586-X); and
- (xvii) Maintenance Field Shop (234).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 4, SK 529-25-1, in the manner indicated on the legend thereof

- (xviii) Administration Building (101);
- (xix) Balboa Filtered Water—Pump Station (634);
- (xx) Community Service Office Building (635);
- (xxi) Training Center (0600, 0602, 0604);
- (xxii) Ancon Water Reservoir;
- (xxiii) Grounds Maintenance Buildings (106, 108-X); and
- (xxiv) Garage (628-X).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 5, SK 529-25-2, in the manner indicated on the legend thereof.

- (xxv) Buildings (725, 726);
- (xxvi) Community Health Center Building (721);
- (xxvii) Maintenance Shop (1437);
- (xxviii) Garage Buildings (0900, 711-X, 761-X, 786-X, 787-X, 788-X, 789-X, 797-X, 1435);
- (xxix) Storage Sheds and Toilets (1559-X, 0773, 0849, 1435-X);
- (xxx) Community Service Youth Facilities (0910);
- (xxxii) Sewage Pump Station (0755);
- (xxxii) Magistrates Court (803);
- (xxxiii) Balboa Police Station (801, 801-R, 801-S, 801-T, 801-U); and
- (xxxiv) Water Tanks—Ancon Hill.

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 6, SK 529-25-3, in the manner indicated on the legend thereof.

- (xxxv) Docks 12, 13 and 19;
- (xxxvi) Harbor Master Building (43-A);
- (xxxvii) Construction Division Office (29-X);
- (xxxviii) Port Engineer Building (31);
- (xxxix) Instrument Repair Shop (1-J);
- (xl) Apprentice Training Facilities (2A and 3);
- (xli) Warehouses (5, 19, 4, 44-B and 42 including yard area and miscellaneous small support buildings);
- (xlii) Supply Management Offices (28);
- (xliii) Refrigeration and Air Conditioning Repair Facility (14);
- (xliv) Maintenance Facilities (8 and 10);
- (xlv) Toilets (21);
- (xlvi) Pilots Carport (39-B);
- (xlvii) Rigging Shed, supporting Dock 19 (51);
- (xlviii) Furniture Storage, Lubrication Warehouse (78);
- (xlix) Community Service Balboa Recreational Tennis Courts;
- (l) Pier 20 Area (including 57 and 57-X);
- (li) Electronic Repair Facility (40);
- (lii) Core Storage (12);
- (liii) Central Air Conditioning Plant and Cooling Tower (9);
- (liv) Maintenance Equipment Storage (13);
- (lv) Sand Blasting Shed (12-A);
- (lvi) Community Service Recreational Facility (9-A);
- (lvii) Electrical Division Buildings (66-A, 66-B, 66-C, 66-D, 66-E, 38 and 36);
- (lviii) Chilled Water Pump House (72);
- (lix) Telephone Exchange Building (69); and
- (lx) Building (37).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 7, SK 529-25-4, in the manner indicated on the legend thereof.

- (lxi) Toilets and Storage (1256);
- (lxii) Community Service Youth Facilities (0791);
- (lxiii) Foam Storage Facility (1254);
- (lxiv) Sewage Pump Station No. 2 (1208);
- (lxv) Dock 4;

- (lxvi) Printing and Duplicating Center (911); and
- (lxvii) Marine Traffic Control Center (909, 910).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 8, SK 529-25-5, in the manner indicated on the legend thereof.

- (lxviii) Records Storage (42-D);
- (lxix) Warehouse and Office (42-G, 42-F);
- (lxx) Quarters Maintenance Shop (5052);
- (lxxi) Toilets and Storage (5546);
- (lxxii) Storage and Warehouse (5553);
- (lxxiii) Surveying Office and Storage (5250);
- (lxxiv) Community Service Center (5051, 5051-X);
- (lxxv) Diablo Power Substation (5300);
- (lxxvi) Office Building (5140); and
- (lxxvii) Storage Warehouse (42-E).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 9, SK 529-25-6, in the manner indicated on the legend thereof.

- (lxxviii) Water Tanks;
- (lxxix) Water Pump Station (6219);
- (lxxx) Toilets and Storage (6423);
- (lxxxii) Community Welfare—AA(6550); and
- (lxxxii) Los Rios Power Substation (6464).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 10, SK 529-25-7, in the manner indicated on the legend thereof.

- (lxxxiii) Telephone Exchange (52);
- (lxxxiv) Communication Field Office (53);
- (lxxxv) Fire Station (62);
- (lxxxvi) Community Service Center (65-A) and B.S.A. (729);
- (lxxxvii) Gas Station, Noncommercial (57);
- (lxxxviii) Housing Office, Maintenance Shops (58);
- (lxxxix) Toilet and Storage (77-A, 0277-X, 332);
- (xc) Sanitation Building (64); and
- (xci) Community Health Center (63).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 11, SK 529-25-10, in the manner indicated on the legend thereof.

- (xcii) Grounds Maintenance Offices, Toilets and Storage (40-A, 40-G, 141);

- (xciii) Garages (29, 29-A, 108, 140);
- (xciv) Telephone Exchange (102-X);
- (xcv) A.R.S. (71, 74, 104, 135, 150, 208, 210, 220, 233-X, 236-X, 262, 355, 373, UX-1, UX-2, UX-3) and B.S.A. (122);

- (xcvi) Public Toilet (385);
- (xcvii) Fire Station (161);
- (xcviii) Community Service Center (206); and
- (xcix) Gatun Power Substation (100).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 12, SK 529-25-11, in the manner indicated on the legend thereof.

- (c) Construction Division Office (7998);
- (ci) Quarters Maintenance Shop and Office (7999);
- (cii) Toilets and Storage (8038-X, 8471);
- (ciii) Community Service Center (8040);
- (civ) Sewage Pump Station (8140); and
- (cv) Community Service Center Building Garage (8040-X).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 13, SK 529-25-12, in the manner indicated on the legend thereof.

- (cvi) Engineering Survey Building (9212);
- (cvii) Telephone Building (9214); and
- (cviii) Fire Station Building (9100).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 14, SK 529-25-8, in the manner indicated on the legend thereof.

- (cix) Filtered Water Pump House (308); and
- (cx) Paraiso Power Substations.

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 15, SK 529-25-9, in the manner indicated on the legend thereof.

- (cxi) Motor Transportation Facilities (5046, 5063, 5064, 5064-A, 5065, 5067, 5077); and
- (cxii) Canal/IRHE Power Interconnect Station.

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 16, SK 529-25-13, in the manner indicated on the legend thereof.

- (cxiii) Mount Hope Warehouse Complex (7018, 7020, 7021, 7022, 7025-A, 7025-B, 7025-C, 7030, 7031, 7032, 7033);
- (cxiv) Fire Station (7029);
- (cxv) Mount Hope Water Filtration Plant (7035, 7037 and Water Tanks 1 and 2);
- (cxvi) Air Conditioning and Refrigeration Maintenance (7024); and
- (cxvii) Electrical Field Facilities (7051, 7051-A, 7051-B, 7051-C, 7051-D, 7056).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 17, SK 529-25-14, in the manner indicated on the legend thereof.

- (cxviii) Tugboat Personnel Parking Area and Shed;
- (cxix) Harbor Master Office and Boat House (1013);
- (cxx) Administration Building (1105); (3339);
- (cxxi) Dredging Division Office and Dock (3339);
- (cxxii) Maintenance Facilities (1707, 1707-C, 1707-D, 1707-E, 1709, 1726, 1728, 1730, 1708);
- (cxxiii) Telephone Exchange (1907);
- (cxxiv) Signal Station-Top of Pier 6;
- (cxxv) Tug Landings at ends of Piers 6 and 7; and
- (cxxvi) Police Training Center (1107).

The installations which are described immediately above are identified on the map attached hereto as Attachment No. 18, SK 529-25-15, in the manner indicated on the legend thereof.

- (cxxvii) Buildings (22, 100, 82);
- (cxxviii) Toilets and Storage (53);
- (cxxix) Community Service Center and Telephone Exchange (1140);
- (cxxx) Coco Solo Power Substation (3);
- (cxxxii) Maintenance Shop (130); and
- (cxxxii) Imhoff Tanks (86, 91).

The installations which are described immediately above are identified on the maps attached hereto as Attachment No. 19, SK 529-25-16, in the manner indicated on the legend thereof.

- (cxxxiii) Toilet and Storage (0349).

The installation which is described immediately above is identified on the map attached hereto as Attachment No. 20, SK 529-25-18, in the manner indicated on the legend thereof.

- (cxxxiv) Amador Causeway and roadway south from southern tip of Fort Amador (Coordinates 601873 to 627847);
- (cxxxv) Naos Island launch landing facilities, including dispatcher building, piers, float, breakwater and access roadway (Coordinate 611858);
- (cxxxvi) Flamenco Island Signal Station (Coordinate 627847);
- (cxxxvii) Farfan Spillway (Coordinate 577-868);
- (cxxxviii) Madden Wye Facilities (101, 102, 104, 105, 106, 107, 108, 109, 111, 112, 113, 114, 127, 128, 129, 149, 172, 173) (Coordinate 449016);
- (cxxxix) Summit Power Substation (Coordinate 495013);
- (cxl) Summit Explosive Storage Facilities (1, 2, and 3) (Coordinate 477030);
- (cxli) 44 KV Power Transmission Line (Coordinates 519183 to 495013);
- (cxlii) Coco Solito Water Meterhouse (6201) (Coordinate 229323); and
- (cxliii) South Coco Solo Power Substation (1116) (Coordinate 232345).

The approximate centers or locations of the installations described immediately above are identified by the accompanying coordinates, as located on the map attached hereto as Attachment No. 1.

(e) The following installations that are described in subparagraph 1(d) above shall cease to be installations subject to the provisions of this Agreement applicable to the Canal operating areas as stated below:

(i) Thirty calendar months following the entry into force of this Agreement:

(A) The Balboa Police Station complex (801, 801-R, 801-S, 801-T and 801-U).

(B) The Balboa Magistrates Court (803).

For the purposes of this provision, the Balboa Police Station complex and the Balboa Magistrates Court are identified on the map attached hereto as Attachment No. 21, SK 529-25-3A, in the manner indicated on the legend thereof.



(ii) Three years following the entry into force of this Agreement:

(A) The Ancon District Court (310).

(B) The Cristobal Police Training Center (1107).

For the purposes of this provision, the Ancon District Court is identified on the map attached hereto as Attachment No. 22, SK 529-25-1A, in the manner indicated on the legend thereof, and the Cristobal Police Training Center is identified on the map attached hereto as Attachment No. 23, SK 529-25-15A, in the manner indicated on the legend thereof.

(iii) At such time as the United States ceases to use such installations:

(A) The Balboa Commissary Installation (725 and 726).

(B) The Coco Solo Commissary installation (100 and 22).

For the purposes of this provision, the Balboa Commissary Installation is identified on the map attached hereto as Attachment No. 21, SK 529-25-3A, and the Coco Solo Commissary installation is identified on the map attached hereto as Attachment No. 24, SK 529-25-16A.

(iv) At such time as the following areas and installations are required by the Republic of Panama for expansion of the Port of Balboa:

(A) The Pier 20 area (including 57 and 57-X).

(B) The Scrap Yard area (less 42).

For the purposes of this provision, these areas and installations are identified on the map attached hereto as Attachment No. 25, SK 529-25-4A, in the manner indicated on the legend thereof.

## 2. The Housing Areas are as follows:

(a) Coco Solo, as identified on the map attached hereto as Attachment No. 19, SK 529-25-16, in the manner indicated on the legend thereof.

(b) France Field (Gold Hill), as identified on the map attached hereto as Attachment No. 20, SK 529-25-18, in the manner indicated on the legend thereof.

(c) Margarita, as identified on the map attached hereto as Attachment No. 13, SK 529-25-12, in the manner indicated on the legend thereof.

(d) Mindi, as located on the map attached hereto as Attachment No. 1 (approximate center at Coordinate 2022S6).

(e) Gatun, as identified on the map attached hereto as Attachment No. 12, SK 529-25-11, in the manner indicated on the legend thereof.

(f) Gambon, as identified on the map attached hereto as Attachment No. 11, SK 529-25-10, in the manner indicated on the legend thereof.

(g) Cardenas (Commission housing), as identified on the map attached hereto as Attachment No. 26, SK 529-25-7A, in the manner indicated on the legend thereof.

(h) Los Rios, as identified on the map attached hereto as Attachment No. 10, SK 529-25-7, in the manner indicated on the legend thereof.

(i) Corozal, as identified on the map attached hereto as Attachment No. 10, SK 529-25-7, in the manner indicated on the legend thereof.

(j) Diablo, as identified on the map attached hereto as Attachment No. 9, SK 529-25-6, in the manner indicated on the legend thereof.

(k) Balboa (La Boca), as identified on the maps attached hereto as Attachments Nos. 6 and 8, SK 529-25-3 and SK 529-25-5, in the manner indicated on the legends thereof.

(l) Balboa Heights, as identified on the map attached hereto as Attachment No. 5, SK 529-25-2, in the manner indicated on the legend thereof.

(m) Ancon, as identified on the map attached hereto as Attachment No. 4, SK 529-25-1, in the manner indicated on the legend thereof.

(n) 18 housing units located within the area identified as the "Summit Naval Radio Station" on the map attached hereto as Attachment No. 1, in the event, and at such time as the area ceases to be a Military Area of Coordination.

(o) Cardenas (FAA housing), as identified on the map attached hereto as Attachment No. 27, SK 529-25-7AA, in the manner indicated on the legend thereof, in the event and at such time as the use of said housing area by the Federal Aviation Administration terminates and the area ceases to be an area subject to a separate bilateral agreement.

3. The accessory installations and facilities outside the areas made available for the use of the United States which the United States may continue to use are as follows:

(a) aids to navigation;

(b) triangulation stations;

(c) hydrographic stations and telemetering stations;

(d) spoil dump areas;

- (e) ship beaching areas;
- (f) saddle dams, dikes and water control structures;
- (g) piers and docks;
- (h) bank stability surveillance and protection systems;
- (i) support facilities; and,
- (j) other existing facilities and installations required for the management, operation, or maintenance of the Canal (such as maintenance facilities, utility lines, and pipelines).

4. The Anchorages are as follows:

(a) The Pacific anchorage area, as identified on navigational chart No. 21603, attached hereto as Attachment No. 28, in the manner indicated on the legend thereof.

(b) The Atlantic anchorage area, as identified on navigational chart No. 26068, attached hereto as Attachment No. 29, in the manner indicated on the legend thereof.

5. The areas for expansion of the Anchorages are as follows:

(a) The Pacific anchorage expansion area, as identified on the navigation chart attached hereto as Attachment No. 28, in the manner indicated on the legend thereof.

(b) The Atlantic anchorage expansion area, as identified on the navigational chart attached hereto as Attachment No. 29, in the manner indicated on the legend thereof.

(c) The Limon Bay anchorage expansion area, as identified on the navigational chart attached hereto as Attachment No. 29, in the manner indicated on the legend thereof.

6. The following land and water areas outside of the areas made available for the use of the United States pursuant to the Panama Canal Treaty are also subject to the land use licensing procedure set forth in Article V of this Agreement as stated:

(a) As of the entry into force of this Agreement:

- (i) The Chagres River between Gamboa and Madden Dam to the 100 foot contour line. The Chagres River between Gatun Dam and the Caribbean Sea to the 30 foot contour line.

(ii) Near to the Atlantic entrance to the Canal:

—Within Limon Bay, those areas west of the Canal's channel that are not within the Canal operating area.

—Outside Limon Bay, for a distance of 3 kilometers on each side of the center line of the Canal's channel from the breakwater north for a distance of 3 nautical miles.

(iii) Near the Pacific entrance of the Canal:

—Along the east bank of the Canal from Balboa Port south to the Amador causeway, 30 meters inland from the high water mark.

—Along that portion of the Amador causeway extending from the southern limit of the Fort Amador mainland to Naos Island, the area northeast of the causeway for a distance of 1 kilometer.

—The water areas within a distance of 3 kilometers each side of the center line of the Canal channel from a point (Coordinate 603855) near Naos Island extending southeast paralleling the Canal center line for a distance of 3 nautical miles.

—The water areas between the easterly boundary of the Howard Air Force Base-Fort Kobbe Complex and the Canal channel.

(b) Three years after the entry into force of this Agreement:

Canal Zone Penitentiary area (Gamboa), as described in subparagraph 1(b) above.

ANNEX B

PORTS OF BALBOA AND CRISTOBAL

The areas and installations of the Ports of Balboa and Cristobal, as well as certain specific use rights and guarantees granted by the Republic of Panama to the United States in connection therewith, are described below and, in the case of the said areas and installations, are identified, but not definitively, on the maps attached hereto and referenced herein and on various maps attached to Annex A. When areas or installations are depicted on more than one map of different scales, the identification on the map with the largest scale shall be controlling. More precise identifications and exact boundaries shall be agreed upon as soon as practicable and in the same manner as described in Annex A. When the aforementioned identifications have been completed and agreed

upon, they shall be controlling as to the boundaries of the installations and areas described in this Annex.

1. The boundaries of the Ports of Balboa and Cristobal are identified on the maps attached hereto as Attachments Nos. 1 and 2, respectively, in the manner indicated on the legends thereof.

2. The United States shall have the right to use, for the management, operation, maintenance, protection and defense of the Canal, the following port installations and equipment which the Republic of Panama shall maintain in efficient operating condition:

(a) Docks 6, 7, 14, 15, 16, 17, and Pier 18, including fendering systems, capstans, camels, bollards, bits, and wearing surfaces, railroad spurs, crane tracks, signal lights, water lines, sewers, compressed air lines, power cables, telephone cables, duct lines and material handling equipment, tunnels, and switch gear.

(b) Facilities.

(i) Drydock No. 1, including all of the following facilities, equipment and utilities required to support its operation:

(A) Drydock Miter Gates and two electric motors and mechanical systems for opening and closing the gates.

(B) Fifty keel blocks and one hundred and fifty hauling blocks, including all hauling block tracks, chain sheaves, brackets, hauling chains, and blocking dogs.

(C) Ten capstans.

(D) Flooding/dewatering tunnels.

(E) Four dewatering pumps, two drainage pumps, and one salt water pump.

(F) All valves, bulkheads, and screens in the flooding and dewatering system.

(G) Three stationary 1,600 CFM Joy Air Compressors.

(H) One elevator.

(I) Sixteen portable rain sheds.

(J) Dock S.

(K) All electrical switch gear, lighting and power systems, water and compressed air piping, and hydraulic control systems located in Building 29, the Drydock and Dock S.

(ii) Buildings:

Numbers	Description
1	Machine Shop
1-C	Facilities Building (Storage)

1-D	Launch Repair
1-G	Pipe Shop
1-H	Central Toolcrib, Hose and blower room; power tool repair shop
29	Pump and compressor plant
32	Drydock block storage shed
17, 18, 20, 25 & 30	Toilet and locker rooms

All utility tunnels, electrical, air and water systems which serve these buildings.

(c) Machine Tools and Equipment:

(i) Cranes D-4 (50-ton, steam), and D-19-N (30-ton, diesel-electric) and all trackage.

(ii) Portable 5-ton electric cranes (US-28 and 52).

(iii) Overhead Cranes: Two in Bldg. 29; two in Bldg. 1.

(iv) Scaffolding and gangways.

(v) Bolt Cutting and threading machine, M-569-N.

(vi) Grinding machine, M-723-N.

(vii) Band saws: T-222-N, T-227-N, XT-627, N-27, and BR-65.

(viii) Lathes: M-267, M-539-N, M-820-N, L-121-N, L-132, XM-729-N, XM-741-N, and XM-808-N.

(ix) Milling machines: M-575-N, L-99-N, L-100-N and L-118-N.

(x) Planers: M-178 and M-824-N.

(xi) Drill presses: M-578-N, M-701 and M-709-N.

(xii) Wood Lathe, N-36.

(xiii) Wood Planer, N-24.

(xiv) Wood jointer, M-197-N.

(xv) Jointer-Planer, BR-64.

(xvi) Wood saw, M-29-N.

(xvii) Bench saw, BR-66.

(xviii) Disc sander, N-32.

(xix) Surfacing machine, L-207.

(xx) Threading machines, L-194 and T-223-N.

(xxi) Shear, XT-290.

(xxii) Dynamometer, L-172.

(xxiii) Bolt-heading machine, F-174-N.

(xxiv) Grinding machines, XW-599-N and XM-758.

(xxv) Bending machine, T-231-N.

(xxvi) Mortising machine, XW-707-N.

(xxvii) Router and boring machine, XW-820-N.

- (xxviii) Edge planer, XB-872.
- (xxix) Table saw, XW-572-N.

3. The United States shall have the right, on a guaranteed basis, to use the following installations and port services in accordance with the Commission's maintenance schedules or for emergency repairs:

- (a) The facilities listed in paragraph 2(b) of this Annex.
- (b) The machine tools and equipment listed in paragraph 2(c) of this Annex.
- (c) Access.
  - (i) Paved yard area adjacent to Drydock No. 1 and to the buildings listed in subparagraph 2(b)(ii) of this Annex.
  - (ii) Required water access for floating equipment and vessels from Canal operating area to Drydock No. 1 includes water depth sufficient to clear gate sill (-39.5 feet PLD) and sufficient lateral clearance between Docks 7 and 8 to permit safe entry.

#### ANNEX C

##### PROCEDURAL GUARANTEES

A United States citizen employee, or a dependent, prosecuted by the Panamanian authorities shall be entitled to the following procedural guarantees:

- (a) To a prompt and speedy trial.
- (b) To be informed, in advance of trial, of the specific charge or charges made against him.
- (c) To be confronted with and to be allowed to cross-examine the witnesses against him.
- (d) To have evidence and witnesses in his favor presented. The authorities shall submit such evidence and call the witnesses if they are within the Republic of Panama.
- (e) To have legal representation of his own choice for his defense during all investigative and judicial phases from the time of submission to questioning and throughout the entire proceedings; or, if he indicates he lacks funds for his defense, to be defended by the appropriate public defender.
- (f) To have the services of a competent interpreter if he considers it necessary.
- (g) To communicate with a representative of the Government of the United States and to have

such a representative present, as an observer, at his trial.

(h) Not to be held guilty on account of any act or omission which did not constitute a criminal offense under the law of the Republic of Panama at the time it was committed.

(i) To be present at his trial which shall be public. However, without prejudice to the procedural guarantees in this Annex, persons whose presence is not necessary may be excluded, if the court so decides for reasons of public orders or morality.

(j) In his proceedings to have the total burden of proof laden upon the Public Prosecutor or the prosecution.

(k) To have the court consider only voluntary confessions and evidence properly obtained in accordance with the requirements of the law.

(l) Not to be compelled to testify against or otherwise incriminate himself.

(m) Not to be required to stand trial if he is not physically or mentally fit to stand trial and participate in his defense.

(n) Not to be tried or punished more than once for the same offense.

(o) To have the right to appeal a conviction or sentence.

(p) To have credited to any sentence for confinement his entire period of pretrial custody.

(q) Not to be subject to the application of martial law or trial by military courts or special tribunals.

(r) To enjoy all other guarantees and rights provided for in the Constitution, Judicial Code and other laws of the Republic of Panama.

#### AGREED MINUTE TO THE AGREEMENT IN IMPLEMENTATION OF ARTICLE III OF THE PANAMA CANAL TREATY

1. With reference to paragraph 2 of Article I, it is agreed that skilled, technical or professional employees of the Commission, who are nationals of States other than the United States or the Republic of Panama, and their dependents, shall have the same rights and privileges as United States citizen employees and dependents under the Panama Canal Treaty and the Agreement in Implementation of Article III of that Treaty (hereinafter referred to as "the Agreement"). Presence in connection with employment by the Commission shall not be con-

sidered as residence in the Republic of Panama. However, this provision shall not apply to nationals of third States recruited within the Republic of Panama after the entry into force of the Agreement.

2. With reference to Article II, it is contemplated that the United States may be represented on the Coordinating Committee by a senior United States citizen official or employee of the Commission and that the Republic of Panama will be represented by a citizen of the Republic of Panama of corresponding level or rank.

3. With reference to Article VI:

(a) it is understood that during the five years following the entry into force of the Panama Canal Treaty, certain United States nationals employed by the United States Forces, such as employees of medical and educational facilities, and their dependents, shall be considered to be United States citizen employees and dependents.

(b) it is understood that a housing unit is an individual family apartment, bachelor apartment or bachelor room in a single or multi-dwelling building. The minimum percentages of housing units, the use of which will pass to the Republic of Panama, have been calculated on the basis of an estimated inventory of approximately 4,300 housing units owned by the Panama Canal Company immediately prior to entry into force of the Agreement.

4. With reference to paragraph 3 of Article XIII, concerning educational services that may be furnished to United States citizen employees and their dependents, it is understood that the United States may continue to furnish such services to dependents of any person, regardless of nationality, in those cases in which such dependents were enrolled in the school system of the former Canal Zone Government prior to the entry into force of the Agreement.

5. With reference to paragraph 2 of Article XIX, it is understood that, as a matter of general policy, the Republic of Panama will waive jurisdiction to the United States, at its request, in cases arising under that paragraph.

6. With reference to paragraph 4(b) of Article XIX, the five offenses under Panamanian law referred to are understood to be:

(a) Murder—the intentional killing of one person by another.

(b) Rape—the commission of an act of sexual intercourse by violence or threat and without consent with a person not his spouse, or with a person who is

not capable of resisting by reason of mental or physical illness, or with a minor less than twelve years old.

(c) Robbery with violence—the act of appropriating an object of value belonging to someone else with the purpose of depriving its owner of his possession and deriving benefit from it, using violence against such person or a third person present at the scene of the act.

(d) Trafficking in drugs—the unlawful sale, exchange, or transfer for gain of marihuana, hashish, heroin, cocaine, amphetamines, barbiturates, or L.S.D.

(e) Crimes against the security of the Panamanian State—espionage, sabotage, or terrorism directed against the constituted powers or authorities of the Republic of Panama, with the purpose of overthrowing them.

7. With reference to Annex A, it is understood that the United States may continue to provide utility services, in coordination with the appropriate authorities of the Republic of Panama, for certain of those areas and facilities transferred to the Republic of Panama as provided in Article XIII of the Panama Canal Treaty. It is further understood that since the utilities systems serving many of these areas and facilities are fully integrated with those of the Canal, the United States may, on behalf of the utilities agencies of the Republic of Panama, continue to provide utilities such as power, water, and sewers to private persons or to agencies of the Government of Panama in such areas. It is further understood that the utilities agencies of the Republic of Panama will be responsible for setting rates for and billing such of its customers, and will reimburse the United States for its cost in providing such services.

8. With reference to subparagraph 1(a) of Annex A:

(a) it is understood that the Republic of Panama may construct (i) an Atlantic Coast Highway through a right-of-way to be agreed upon by the Parties, at such time as the Republic of Panama is prepared to begin construction of that highway, and (ii) a new highway on the Pacific side of the Isthmus through a right-of-way to be agreed upon by the Parties at such time as the Republic of Panama is prepared to begin construction of that highway. It is further understood that the bridge over the Canal, in each case, will be constructed sufficiently high so as not to interfere with the operation of the Canal or with any improvements that may be made to the Canal.

(b) it is understood that the National Port Authority of the Republic of Panama will have the right to use, free of cost, the marine bunkering facilities located on Pier 16, Cristobal, for discharging petroleum products, subject always to the right of the United States to use those facilities on a priority basis. It is further understood that, in connection with its use of those facilities, the Republic of Panama will not alter or modify Pier 16, the marine bunkering facilities or the utilities thereon, except as mutually agreed, and will reimburse the United States for any damage caused as a result of the Republic of Panama's use of such facilities.

9. With reference to paragraphs 1(d) (xxxiii) and 1(e)(i)(A) of Annex A, it is understood that the United States shall make available to the Republic of Panama appropriate areas within the Balboa Police Station Complex for police liaison purposes for the thirty-month transition period following the entry into force of the Agreement. It is understood that at the end of that period, the provisions of paragraph 2(b) of Article XIII of the Panama Canal Treaty shall apply. With reference to paragraph 1(d)(cxx) of Annex A, it is understood that the United States shall, if requested by the Republic of Panama, make available to the Republic of Panama appropriate areas within the Cristobal Police Station (located in Building 1105) for police liaison purposes for the aforesaid thirty-month period and, thereafter, for general police functions.

10. With reference to subparagraphs 1(e)(iv)(A) and (B) of Annex A, it is understood that at such time as Pier 20 and the Scrap Yard area referred to therein cease to be areas subject to the provisions of the Agreement applicable to the Canal operating areas, the Republic of Panama will provide comparable and acceptable pier space in Balboa Harbor and scrap yard areas for the use of the Commission at no charge.

11. With reference to paragraph 2 of Annex A, it is understood that the United States may continue to operate and maintain noncommercial recreational and community service areas and facilities for the benefit of all occupants of the housing areas and all employees of the Commission, and their dependents, on a non-discriminatory basis. It is further understood that recreational and community service activities conducted in such areas and facilities will be noncommercial, and there will be no user charges associated therewith unless otherwise agreed by the Parties.

12. With reference to subparagraph 3(d) of Annex A, it is understood that such spoil dump areas include the spoil dump areas identified on the navigational charts attached thereto as Attachments 28 and 29, in the manner indicated on the legend thereof.

13. With reference to subparagraph 3(j) of Annex A, it is understood that the Republic of Panama will not undertake or permit any construction, excavation or other activity which may endanger or encroach upon underground or aboveground installations, including pipes, ducts, culverts, cables, microwave paths and transmission lines, except as may be otherwise agreed in the Coordinating Committee.

14. With reference to Attachment Nos. 1 and 6 of Annex A, it is understood that the Republic of Panama shall continue to use the Balboa Fire Station (Building 703, Attachment No. 6) and the Coco Solito Fire Station (Building 96, Attachment No. 1, Coordinates 231328) as fire protection installations throughout the life of the Agreement, unless otherwise agreed by the Parties. The provisions of paragraph 2(a) of Article XIII of the Panama Canal Treaty apply to such fire stations. It is further understood that the United States, which may continue to provide fire protection of Commission areas and installations, and the Republic of Panama, which is responsible for fire protection generally throughout its territory, will review periodically the most effective allocation of both Parties' fire protection resources, and, if appropriate, the United States will transfer to the Republic of Panama such other fire stations as are excess to its needs. The Republic of Panama shall continue the use of any installations so transferred as fire protection installations for the life of the Agreement, unless otherwise agreed. It is understood also that both Parties will cooperate fully in ensuring effective and efficient delivery of fire protection services throughout the vicinity of the Canal.

15. With reference to Attachments 1, 14 and 15 to Annex A, it is understood that prior to authorizing any new use of or activities in the townsites of Pedro Miguel (Attachment No. 14) or Paraiso (Attachment No. 15) or (a) the land areas within a distance of 3 kilometers each side of the center line of the Canal channel from a point (Coordinates 603855) near Naos Island extending southeast paralleling the Canal center line for a distance of 3 nautical miles or (b) the land areas between the easterly boundary of the Howard Air Force Base-Fort Kobbe

Complex and the Canal channel, the Republic of Panama shall ensure that the Commission concurs in writing that the proposed use or activity would be compatible with the efficient management, operation, maintenance, protection and defense of the Canal. It is further understood that the Republic of Panama (a) shall control and supervise the activities to be carried out under its responsibility in the aforementioned townsites and areas to ensure that such activities are compatible with such purposes, and (b) shall take the measures necessary to prevent, or to terminate, any activity that, in the opinion of the Commission, is incompatible with such purposes. It is further understood that, with reference to the aforementioned townsites of Pedro Miguel and Paraiso, the provisions of paragraphs 4 and 6 of Article VI of the Agreement will apply thereto.

16. With reference to Attachment No. 4 to Annex A, it is understood that for thirty calendar months following the entry into force of the Agreement the United States may, for activities related to the management, operation or maintenance of the Panama Canal, continue to use certain office space located in the Civil Affairs Building (Building No. 0610), title to which is transferred to the Republic of Panama upon the entry into force of the Agreement as provided in Article XIII of the Panama Canal Treaty. It is further understood that, notwithstanding paragraph 4(xiii) of the Annex to the Panama Canal Treaty, the Commission may use such building to operate and maintain the museum and library collections which are located therein upon the entry into force of the Agreement.

17. With reference to Attachment No. 6 to Annex A:

(a) it is understood that the Republic of Panama shall ensure that recreational and entertainment activities comparable to those currently provided will continue to be provided in the Bowling Alley, Cafeteria, and Theater located in Balboa (Buildings 717-X, 727, and 727-C) throughout the life of the Agreement, unless otherwise agreed by the Parties. The provisions of paragraph 2(a) of Article XIII of the Panama Canal Treaty apply to such facilities.

(b) it is understood that the Republic of Panama shall continue use of the Balboa Post Office (Building 724) and the Gamboa Post Office (Building 61) as postal service installations throughout the life of the Agreement, unless otherwise agreed by the Parties. The provisions of paragraph 2(a) of Article XIII of the Panama Canal Treaty apply to such post offices.

18. With reference to Attachment 7 to Annex A, it is understood that the Republic of Panama will permit access to and scheduled use of the baseball and softball fields located in the Port of Balboa by organized leagues until such time as the area in which such fields are located is converted to other use. It is further understood that at such time as any of such fields is converted to other use, the Republic of Panama will make available, without charge, other areas suitable for the use of organized leagues.

19. With reference to Attachment No. 18 of Annex A, it is understood that appropriate areas in the Cristobal Administration Building (Building 1105) shall be made available to the postal service system of the Republic of Panama for postal service purposes.

20. With reference to Attachment 1 to Annex B:

(a) it is understood that the Ports and Railroads Committee will not approve any activity within the area which constituted the Corozal Antenna Field, prior to the entry into force of the Agreement, which would require construction of piers, docks, quays, or any similar structures along the banks of the Canal or within 250 feet of such banks.

(b) it is understood that the installations, shipyards, buildings, and equipment within said buildings, which make up the Naval Industrial Reserve Shipyard and which, in accordance with Article V of the Agreement, shall be made available to the United States in event of a defense emergency, include the following facilities: Drydocks 1, 2, and 3; Docks 7, 8, 12, and 13; Cranes D-4 and D-19-N; Buildings 1, 1A, 1C, 1D, 1G, 1H, 1J, 30, 17, 31, 20, 18, 2, 2A, 3, 4, 4B, 29, 25, 16, 11, 23, 12, 29B, 12A, 12X, and 13; the transfer table and capstans. It is understood, however, that only those of the above facilities which have been transferred to the Republic of Panama shall be deemed to be included within the Naval Industrial Reserve Shipyard for the purposes of paragraph 2(g) of Article V of the Agreement.

(c) it is understood that the Republic of Panama will permit the American Legion and the Balboa Yacht Club to continue their operations in Building 1370 and the adjacent facilities, unless otherwise agreed in the Ports and Railroads Committee.

21. With reference to Attachment 2 to Annex B, it is understood that the United States may use Pier 8 in the Port of Cristobal for berthing and handling cargo for the SS Cristobal, or for any successor to it, on a priority basis.

**Agreement in Implementation of Article IV of the Panama Canal Treaty**

Whereas, the Republic of Panama and the United States of America have signed on this date, the "Panama Canal Treaty" to regulate the system pertaining to the operation, maintenance, administration, protection and defense of the Panama Canal in harmony with the Charter of the United Nations;

Whereas, the Republic of Panama shall permit the United States to use certain parts of its territory for the protection and defense of the Panama Canal, with the participation of the Panamanian Armed Forces as is established under Article IV of the "Panama Canal Treaty" subscribed on this date;

Whereas, in order to determine the system applicable to the members of the Armed Forces of the United States, the civilian component, and dependents, accompanying them during their stay in the Republic of Panama for the specific purposes of the Panama Canal Treaty, and as the two Governments may otherwise agree, and for the purpose of regulating the use of the defense sites;

Pursuant to the "Panama Canal Treaty," the following has been agreed upon:

ARTICLE I

DEFINITIONS

(1) Defense Sites: Those areas, and the installations within them, which the Republic of Panama by this Agreement permits the United States Forces to use for the specific purposes of the Panama Canal Treaty, and as the two Governments may otherwise agree, a list of which is set forth in paragraph (1) of Annex A of this Agreement.

(2) United States Forces: The land, sea and air armed services of the United States of America.

(3) Members of the Forces: The military personnel of the United States Forces on active duty who are in the Republic of Panama for the specific purposes of the Panama Canal Treaty, and as the two Governments may otherwise agree.

This term includes those military personnel of the United States Forces on active duty and present in the Republic of Panama on temporary duty from

other stations, or on board aircraft or vessels of the United States Forces which are in transit or visiting on official business.

Solely for purposes of the privileges authorized under Articles X, XI, and XVIII of this Agreement, this term also includes those military personnel of the United States Forces on active duty, assigned to other stations and present in the Republic of Panama on official leave.

(4) Members of the civilian component:

(a) Nationals of the United States, to whom United States passports have been issued, who are employed by the United States Forces and assigned to the defense sites in the Republic of Panama.

(b) Nationals of third countries employed by the United States Forces, who are assigned to the defense sites and who are not habitual residents of the Republic of Panama.

(c) Other categories of persons which could be agreed upon as exceptions by the two Governments.

This term includes personnel on temporary duty and civilian crew members of aircraft and vessels of the United States Forces which are in transit or visiting on official business.

For the purpose of this definition, presence in connection with employment by the United States Forces shall not be considered as residence in the Republic of Panama.

(5) Dependents: The spouse and children of members of the Forces or of the civilian component, and other relatives who depend on them for their subsistence and who habitually live with them under the same roof.

ARTICLE II

NON-INTERVENTION PRINCIPLE

The members of the Forces or the civilian component, dependents, and designated contractors of the United States Forces shall respect the laws of the Republic of Panama and shall refrain from any activity inconsistent with the spirit of this Agreement. Especially, they shall abstain from all political activity in the Republic of Panama as well as from any interference in the internal affairs of the Republic.

The United States shall take all measures within its authority to ensure that the provisions of this Article are fulfilled.



## ARTICLE III

## JOINT COMMITTEE

(1) A Joint Committee shall be established which shall start to function upon the entry into force of this Agreement and which shall be composed of a representative of the Republic of Panama and of the United States of America at the level and rank to be agreed upon by both Governments, and who may have one or more deputies, on a parity basis.

(2) The Joint Committee shall perform the functions specifically indicated by the provisions of this Agreement, and others entrusted to it by both Governments concerning the implementation of this Agreement.

(3) The Joint Committee shall determine its rules of procedure within the spirit of this Agreement and may designate the subcommittees it may deem necessary for the fulfillment of its functions.

(4) The Joint Committee shall be organized in such a manner that it may meet promptly and at any time upon request of the representative of the Republic of Panama or of the United States. The Joint Committee shall send a monthly report on its activities to the Governments of the Republic of Panama and the United States.

(5) The Joint Committee shall refer to the two Governments, for their consideration through appropriate channels, any matters which it has not been able to resolve.

## ARTICLE IV

## USE OF DEFENSE SITES

(1) The United States Forces may use the defense sites listed in paragraph (2) of Annex A of this Agreement. Moreover, Annex A includes a list of military areas of coordination which may be used by the Armed Forces of both Governments in accordance with Annex B of this Agreement.

(2) Annex A of this Agreement shall be examined every two years or upon the request of either Government, and shall be revised to reflect any agreed elimination or change in areas. The United States Forces may notify the Republic of Panama at any time that the use of a defense site or a military area of coordination or of a specified portion thereof, or other right granted by the Republic of Panama is no longer required. Under such circumstances, said use or

other right shall cease on the date determined by the two Governments.

(3) The United States Government may, at any time, remove from the Republic of Panama, or dispose of in the Republic of Panama in accordance with conditions to be agreed upon by the two Governments, all equipment, installations, material, supplies or other removable property brought into, acquired or constructed in the Republic of Panama by or for the United States Forces. Property left by the United States in a defense site after the date the use of such site by United States Forces ceases shall, unless agreed otherwise by the two Governments, become the property of the Republic of Panama.

(4) At the termination of any activities or operations under this Agreement, the United States shall be obligated to take all measures to ensure insofar as may be practicable that every hazard to human life, health and safety is removed from any defense site or a military area of coordination or any portion thereof, on the date the United States Forces are no longer authorized to use such site. Prior to the transfer of any installation, the two Governments will consult concerning: (a) its conditions, including removal of hazards to human life, health and safety; and (b) compensation for its residual value, if any exists.

(5) The United States Forces shall have responsibility for control of entry to the defense sites. The Republic of Panama may share in the exercise of this control, in a manner to be agreed upon in the Joint Committee. Necessary signs, in Spanish and English, requested by the United States Forces through the Joint Committee will be erected outside the defense sites, expressing that the sign is erected under the authority of the Republic of Panama.

(6) Since the Republic of Panama is a signatory to the Latin American Denuclearization Treaty (Tlatelolco), the United States shall emplace no type of nuclear armament on Panamanian territory.

(7) The Joint Committee will constitute the means of communication and information between the two Governments with regard to matters pertaining to the implementation of this Article.

## ARTICLE V

## FLAGS

(1) All of the territory of the Republic of Panama, including the defense sites, shall be under the flag of

the Republic of Panama and, consequently, within such sites the Panamanian flag shall always occupy the position of honor. Within the defense sites, the flag of the United States shall also be flown jointly with the Panamanian flag. The Joint Committee shall determine the manner of displaying the flags.

(2) At the entrances, outside the defense sites, only the flag of the Republic of Panama will be flown.

## ARTICLE VI

### CRIMINAL JURISDICTION

(1) The authorities of the Republic of Panama shall have jurisdiction over members of the Forces or the civilian component, and dependents, with respect to offenses arising from acts or omissions committed in the Republic of Panama and punishable under the laws of the Republic of Panama. Nevertheless, the Republic of Panama permits the authorities of the United States to exercise criminal jurisdiction within defense sites, and, consequently, to have the primary right to exercise jurisdiction over acts which are criminal acts according to United States law, and which are committed within such sites by members of the Forces or the civilian component, or dependents.

(2) The Republic of Panama also permits the authorities of the United States to have the primary right to exercise criminal jurisdiction over members of the Forces or the civilian component, and dependents, for any offense committed outside the defense sites, in the following cases:

(a) If the offense is solely against the property or security of the United States. It is understood that offenses against the security of the United States include: treason or sabotage against the United States, espionage or violation of any law relating to official secrets of the United States or to secrets relating to the national defense of the United States.

(b) If the offense is solely against the person or property of a member of the Forces or the civilian component, or a dependent.

(c) If the offense arises out of an act or omission done in the performance of official duty, in which case, when requested by the Panamanian authorities or when the military authorities of the United States may deem it necessary, the military authorities of the United States shall issue a certificate establishing that the offense originated from an act or omission occurring in the performance of official duty. Panama

shall consider this certificate as sufficient proof for the purposes of this paragraph, or shall request a review by the Joint Committee within ten days from the receipt of the certificate. The Joint Committee shall complete its review within ten days from the receipt of the request, except when more thorough consideration is required, in which case the Joint Committee shall complete its review within thirty days.

A substantial deviation from the duties which a person is required to perform in a specific mission shall generally indicate an act or omission not occurring in the performance of official duty, and, consequently, the military authorities of the United States will not consider it necessary to issue a certificate of official duty.

(3) The provisions of this Article notwithstanding, the Republic of Panama shall always reserve the right to exercise jurisdiction over members of the civilian component and dependents who are Panamanian nationals or habitual residents of Panama.

(4) The authorities of the Government having the primary right to exercise jurisdiction over an offense shall give sympathetic consideration to any request from the authorities of the other Government for permission to exercise jurisdiction. Such requests may be discussed in the Joint Committee.

(5) (a) The appropriate authorities of the Republic of Panama and of the United States shall assist each other in the arrest of members of the Forces or the civilian component, and dependents, and in their delivery to the authority which is to have custody in accordance with the provisions of this Article.

(b) The authorities of the Republic of Panama shall notify the authorities of the United States as promptly as possible of the arrest of any member of the Forces or the civilian component, or a dependent.

(c) The following procedure shall govern the custody of an accused member of the Forces or the civilian component, or a dependent, over whom the Republic of Panama is to exercise jurisdiction:

(i) If the accused is detained by the United States authorities, he shall, except when charged with murder, rape, robbery with violence, trafficking in drugs, or crimes against the security of the Panamanian State, remain with such authorities pending the conclusion of all judicial proceedings and thereafter until custody is requested by the authorities of the Republic of Panama for the execution of a sentence.

(ii) If the accused is detained by the authorities of the Republic of Panama he shall, except when charged with murder, rape, robbery with violence, trafficking in drugs, or crimes against the security of the Panamanian State, be handed over on request to the United States authorities in whose custody he shall remain until completion of all judicial proceedings and thereafter until custody is requested by authorities of the Republic of Panama for the execution of a sentence.

(iii) When charged with murder, rape, robbery with violence, trafficking in drugs, or crimes against the security of the Panamanian State, the accused shall be handed over to Panamanian authorities upon their request, or if already in their custody, shall remain with them. In these cases the authorities of the Republic of Panama shall give sympathetic consideration to requests for custody by the United States authorities.

(6) (a) The United States authorities shall give full consideration to special requests regarding conditions of custody made by the authorities of the Republic of Panama.

(b) When the accused is in the custody or has been delivered into the custody of the United States authorities he must, upon request by the authorities of the Republic of Panama, be made available to them for the purposes of investigation and trial. This obligation of the United States to ensure the appearance of an accused member of the Forces or the civilian component, or a dependent, will be deemed to satisfy the bail requirement set by the laws of the Republic of Panama.

(7) (a) The authorities of the Republic of Panama and the United States shall assist each other in carrying out all necessary investigations of offenses and in the collection and production of evidence, including the seizure and, in proper cases, the delivery of objects connected with an offense and the appearance of witnesses as necessary.

(b) The authorities of the Republic of Panama and the United States shall, upon request by the other Government, inform each other of the status of cases referred to under the provisions of this Article.

(8) The authorities of the United States shall not carry out a death sentence in the Republic of Panama. As is provided in the laws of the Republic of Panama, a member of the Forces or the civilian component, or a dependent, who has been convicted by a Panamanian court shall not be

subject to the death penalty or to any form of cruel and unusual punishment or treatment.

(9) When an accused member of the Forces or the civilian component, or a dependent, has been tried in accordance with the provisions of this Article by the authorities of the Republic of Panama or by authorities of the United States and has been acquitted, or has been convicted and is serving, or has served, his sentence, or has been pardoned, he shall not be tried again for the same offense within the territory of the Republic of Panama. However, nothing in this paragraph shall prevent the military authorities of the United States from trying a member of the Forces for any violation of rules of discipline arising from an act or omission which constituted an offense for which he was tried by the authorities of the Republic of Panama.

(10) Whenever a member of the Forces or the civilian component, or a dependent, is tried by the Panamanian authorities, he shall be entitled to the procedural guarantees listed in Annex D of this Agreement.

(11) At any time during the detention by the authorities of the Republic of Panama of a member of the Forces or the civilian component, or a dependent, the Panamanian authorities shall permit the military authorities of the United States to visit said member or dependent. Members of his immediate family may visit him weekly. Material and medical assistance (such as food, clothing and comfort items) which the United States authorities and members of his immediate family may consider desirable, and any other assistance which is in accordance with or allowed by Panamanian prison regulations, may be provided to him on such visits.

(12) The Joint Committee will constitute the means of communication and information between the two Governments with regard to matters pertaining to the implementation of this Article.

## ARTICLE VII

### CIVILIAN EMPLOYMENT

The following principles shall govern civilian employment by the United States Forces:

(1) In order to set forth their rights and obligations as the employer, the United States Forces shall draw up regulations which shall contain the terms, conditions and prerequisites for all categories of their

civilian employees. These regulations shall be provided to the Republic of Panama through the Joint Committee.

(2) In conformity with the principles of the labor laws of the Republic of Panama, such regulations shall establish employment preferences in all levels for Panamanian applicants possessing the requisite skills and qualifications. Accordingly, the United States Forces shall endeavor to ensure that the number of Panamanian nationals employed by them in relation to the total number of civilian employees will conform to the proportion established under Panamanian law. Similarly, the terms, conditions and prerequisites for the employment of Panamanian personnel shall conform with the general principles contained in the labor laws of the Republic of Panama.

(3) All civilian employees of the United States Forces, except those who are nationals of the Republic of Panama or who have obtained permanent resident status therein, shall be subject to a system of periodic rotation which will limit their period of employment by the United States Forces in the Republic of Panama. The regulations providing for such rotation shall be provided to the Republic of Panama through the Joint Committee.

(4) With regard to wages, there shall be no discrimination on the basis of nationality, sex or race. Payments by the United States Forces of additional remunerations to persons of any nationality, including Panamanian citizens, who are recruited outside of Panama and must therefore change their place of residence, shall not be considered to be discrimination for the purposes of this Article.

(5) The United States Forces shall take the measures called for under the laws of the Republic of Panama with regard to the application of the tax and social security laws to their employees who are subject to Panama's taxation and social security system, including withholding of tax or social security payments from their salaries.

#### ARTICLE VIII

##### ACQUISITION OF PANAMANIAN SUPPLIES AND SERVICES

(1) The United States Forces shall give preference to the procurement of supplies and services obtain-

able in the Republic of Panama. Such preference shall apply to the maximum extent possible when such supplies and services are available as required, and are comparable in quality and price to those which may be obtained from other sources. For the comparison of prices there will be taken into account the cost of transport to the Republic of Panama, including freight, insurance and handling, of the supplies and services which compete with Panamanian supplies and services. In the acquisition of goods in the Republic of Panama, preference shall be given to goods having a larger percentage of components of Panamanian origin.

(2) Any regulations which may be necessary to carry out this preference shall be agreed upon in the Joint Committee.

#### ARTICLE IX

##### TELECOMMUNICATIONS

(1) The Republic of Panama, in the exercise of its sovereign power over its telecommunications, authorizes the United States Forces to use the communications networks and communications-electronics installations within the defense sites, and to use the radio frequencies and transportable equipment as may be necessary for their requirements, in order to accomplish the specific purposes of the defense of the Canal, and as the two Governments may otherwise agree. The Joint Committee may adopt regulations to govern the use of such transportable equipment outside of the defense sites.

Any use presently being exercised of such networks, installations, frequencies and equipment, for purposes other than those herein authorized, shall be subject to the provisions contained in the Panama Canal Treaty, including those relating to any separation of non-military telecommunications that may be deemed necessary.

(2) The Republic of Panama also authorizes the United States Forces to use installations such as those described in the preceding paragraph already existing outside the defense sites, which serve to accomplish the purposes of the defense of the Canal, and as the two Governments may otherwise agree.

Those already existing installations outside the defense sites may be guarded by authorities of the Republic of Panama. The United States Forces shall

have access to such installations for appropriate operation, maintenance, and replacement.

(3) Provided that they are available and suitable for the purpose, the United States Forces shall use, to the maximum extent possible, the telecommunications services of the Republic of Panama in order to meet their needs, but the applicable rates shall be no less favorable than those charged to governmental agencies of the Republic of Panama.

(4) The United States Forces shall provide the Government of the Republic of Panama a list of all frequencies authorized or in use by the United States Forces. This list shall be submitted through the Joint Committee in ascending frequency order and shall contain as a minimum the power, bandwidth, and type of emission.

(5) The Republic of Panama undertakes not to authorize the use of any frequency which would interfere with those in use by or for the United States Forces or which they may use in the future in accordance with the Panama Canal Treaty and this Agreement.

(6) The Republic of Panama authorizes the United States Forces to use codes, ciphers, and other secure cryptographic means necessary for the specific purposes of the defense of the Panama Canal, and as the two Governments may otherwise agree.

(7) All provisions regarding telecommunications in this Article shall be in accordance with the obligations of both Governments as members of the International Telecommunication Union and the various relevant international agreements to which both Governments are signatories.

(8) Any communication with the International Telecommunication Union regarding the subject matter of this Article shall be effected exclusively by the Republic of Panama.

(9) The radio and television services of the United States Forces operating within the Republic of Panama, will:

(a) Announce at the start and termination of each day's broadcast that the emissions are authorized by the Republic of Panama; and

(b) In television programs originating locally, not use announcers appearing in military uniform.

(10) The Joint Committee may adopt any further regulations as may be necessary to implement the

provisions of this Article, including necessary technical coordination.

## ARTICLE X

### MILITARY POST OFFICES

(1) The United States may establish, maintain and operate, within the defense sites, military post offices for the exclusive use of the United States Forces, the members of the Forces or the civilian component, and dependents, and for the use of such other persons and agencies as may be agreed upon as exceptions by the two Governments through the Joint Committee. Such post offices shall transmit mail only between themselves or between themselves and other United States post offices.

(2) The United States Forces shall take all necessary measures to prevent the unauthorized use of the military post offices. The Panamanian authorities shall periodically inform the authorities of the United States, through the Joint Committee, of all applicable provisions of Panamanian laws, and the United States Forces shall, within their legal capacity, ensure that such provisions are complied with.

(3) The military post offices in the Republic of Panama shall not have direct representation before any international postal organization.

(4) The Republic of Panama may establish post offices within the defense sites, the location of which shall be agreed upon in the Joint Committee, for the transmission of mail between the defense sites and any other areas not authorized to the military post offices by this Agreement.

## ARTICLE XI

### COMMISSARIES, MILITARY EXCHANGES AND OTHER SERVICE INSTALLATIONS

(1) The United States may establish, regulate and use within the defense sites, commissaries, military exchanges, military banking facilities, credit unions, recreational, social and athletic facilities, schools, sanitation and medical facilities, and other categories of service facilities as may be periodically agreed upon by the two Governments through the Joint Committee, for the exclusive use of the mem-

bers of the Forces or the civilian component, and dependents, and for such other persons as may be agreed upon by the two Governments as exceptions through the Joint Committee. These service facilities and their activities, such as the import, purchase, sale and distribution of merchandise, medicine and services, shall be free of taxes, duties, liens, licenses, fees and other charges imposed by the Republic of Panama or any of its political subdivisions.

In order to take advantage of existing installations, the United States Forces may continue to use those installations already in existence outside of the defense sites, which are specified in paragraph (3) of Annex A.

(2) The military banking facilities shall be branches or agencies of banking entities duly authorized to engage in the banking business in Panama. The Government of the Republic of Panama may authorize the installation and operation within the defense sites, at locations agreed upon by the Joint Committee, of branches or agencies of Banco Nacional or other official banking entities of the Republic of Panama.

(3) It is the express objective and purpose of both Governments that the articles and services sold or provided at the commissaries and military exchanges be for the exclusive use of authorized persons. To that end the United States Forces shall, upon request, inform the Panamanian authorities, through the Joint Committee, as to the classification, nature and quantity of certain articles and services sold or provided at such establishments.

(4) With respect to the preceding paragraph, the Republic of Panama and the United States shall jointly take all the necessary measures to prevent the unauthorized use of such activities and the abuse by those who are authorized. Such measures shall include the obtaining of pertinent information and the carrying out of any verifications that may be necessary by Panamanian authorities. The procedure to be followed for these purposes shall be agreed upon by the Joint Committee.

(5) The Government of the United States shall apply appropriate disciplinary sanctions to the members of the Forces or the civilian component, and dependents, or other persons authorized as exceptions who abuse the privileges granted in this Article and commit violations in that respect. In such cases, the United States authorities shall give sympathetic consideration to requests from the Panamanian Government to exercise jurisdiction.

(6) The service facilities referred to in this Article shall grant to Panamanian supplies and services the preference referred to in Article VIII.

## ARTICLE XII

### CONTRACTORS AND CONTRACTORS' PERSONNEL

(1) Whenever contracts are required by the United States Forces for the performance of services or the procurement of supplies, the United States Forces shall adhere to the preferences for Panamanian sources set forth in Article VIII of this Agreement.

(2) Whenever contracts are awarded by the United States Forces to natural persons who are nationals or permanent residents of the United States or to corporations or other legal entities organized under the laws of the United States and under the effective control of such persons, such contractors shall be so designated by the United States Forces and such designations shall be communicated to the Panamanian authorities through the Joint Committee. Such contractors shall be subject to the laws and regulations of the Republic of Panama except with respect to the special regime established by this Agreement, which includes the following obligations and benefits:

(a) The contractor must engage exclusively in activities related to the execution of the work for which he has been contracted by the United States Forces, or related to other works or activities authorized by the Republic of Panama.

(b) The contractor must refrain from carrying out practices which may constitute violations of the laws of the Republic of Panama.

(c) The contractor shall enter and depart from the territory of the Republic of Panama in accordance with procedures prescribed for members of the civilian component in Article XIII of this Agreement.

(d) The contractor must obtain a certificate of professional identity which the proper authorities of the United States Forces shall issue when they are satisfied he is duly qualified. This certificate shall be sufficient to permit him to operate under Panamanian law as a contractor of the Forces. Nevertheless, the Panamanian authorities may require the registration of the appropriate documents to establish juridical presence in the Republic of Panama.

(e) The contractor shall not be obliged to pay any tax or other assessment to the Republic of Panama

on income derived under a contract with the United States Forces as long as he is taxed at a substantially equivalent rate in the United States.

(f) The contractor may move freely within the Republic of Panama, and shall have exemptions from customs duties and other charges, as provided for members of the civilian component in Articles XV and XVII of this Agreement.

(g) The contractor may use public services and installations in accordance with the terms and conditions of Article XIV of this Agreement, but shall pay non-discriminatory highway tolls and taxes on plates for private vehicles.

(h) The contractor shall be exempt from any taxes imposed on depreciable assets belonging to him, other than real estate, which are used exclusively for the execution of contracts with the United States Forces.

(i) The contractor may use the services and facilities provided for in Articles X and XVIII of this Agreement to the extent such use is authorized by the United States Forces.

(3) The United States Forces shall withdraw the designation of a contractor when any of the following circumstances occur:

(a) Upon completion or termination of the contracts with the United States Forces.

(b) Upon proof that such contractors are engaged in business activities in the Republic of Panama other than those pertaining to the United States Forces, without authorization of the Republic of Panama.

(c) Upon proof that such contractors are engaged in practices which in the view of the Republic of Panama constitute serious violations of the applicable laws of the Republic of Panama.

(4) The authorities of the United States shall notify the authorities of the Republic of Panama whenever the designation of a contractor has been withdrawn. If, within sixty days after notification of the withdrawal of the designation of a contractor who entered Panama in the capacity of a contractor, the authorities of the Republic of Panama require such contractor to leave its territory, the United States Government shall ensure that the Republic of Panama shall not incur any expense due to the cost of transportation.

(5) The provisions of this Article shall similarly apply to the subcontractors and to the employees of

the contractors and subcontractors and their dependents who are nationals or residents of the United States. These employees and dependents shall not be subject to the Panamanian Social Security system.

### ARTICLE XIII

#### ENTRY AND DEPARTURE

(1) The United States may bring into the territory of the Republic of Panama members of the Forces or the civilian component, and dependents, for the specific purposes of the Panama Canal Treaty, and as the two Governments may otherwise agree.

(2) (a) In order to enter or leave the territory of the Republic of Panama, the members of the Forces shall be obligated to bear only a personal identity card and individual or collective travel documentation issued by the military authorities of the United States. Such documentation must be presented to the Panamanian authorities. The two Governments shall establish through the Joint Committee the procedure to be followed in exceptional cases.

(b) To enter or leave the territory of the Republic of Panama, the members of the civilian component and dependents must possess, in addition to the travel documentation issued by the United States military authorities, a valid passport. Such documentation shall be presented to the appropriate authorities of the Republic of Panama.

(c) The United States Forces shall furnish each member of the Forces or the civilian component, and dependent, who remains in the Republic of Panama for longer than thirty days, an identity card which shall be issued under the authority of the Joint Committee in Spanish and English. Children under the age of ten years may be included on the identity card of a parent at the option of the parent. These identity cards shall be shown to the appropriate authorities of the Republic of Panama upon request.

The authorities of the Republic of Panama may request information concerning the number of such cards outstanding and the validity of any particular card. The Joint Committee and the United States Forces shall provide such information.

(3) Whenever the status of any member of the Forces or the civilian component, or dependent, is altered so that, at the time of such alteration, he is no longer entitled to remain in the Republic of Panama, the United States Forces shall promptly

notify the Panamanian authorities, and shall, if requested within a period of sixty days thereafter, ensure that transportation from the Republic of Panama will be provided at no cost to the Government of the Republic of Panama.

(4) (a) The members of the Forces or the civilian component, and dependents, shall be exempted from fiscal charges relating to their entry, stay in, or departure from the territory of the Republic of Panama. Similarly they will be exempted from obligatory services established in favor of the Republic of Panama. They shall not acquire any right to permanent residence or domicile in the Republic of Panama.

(b) Members of the Forces or the civilian component who enter the Republic of Panama to execute professional services exclusively for the United States Forces, or in its behalf, shall not be subject to the licensing regimes of the Republic of Panama, but they shall limit their professional activity to such services with the United States Forces for the specific purposes of the Panama Canal Treaty, or as the two Governments may otherwise agree.

#### ARTICLE XIV

##### SERVICES AND INSTALLATIONS

(1) The United States Forces, members of the Forces or civilian component, and dependents, may use the public services and installations belonging to or regulated by the Government of the Republic of Panama, but the terms and conditions of use, prices, rates and tariffs and priorities shall not be unfavorable in relation to those charged other users.

(2) For the use of public services and installations made available through a plant acquired or constructed, or equipment furnished, by the United States Government and subsequently transferred free to the Government of the Republic of Panama, preferential charges shall be granted to the United States Forces taking these circumstances into account.

(3) The United States Forces may establish and operate the supporting services and facilities it requires within the defense sites, and exceptionally, with the authorization of the Government of the Republic of Panama, outside such sites.

(4) The Republic of Panama will permit the United States Forces to continue to use in an ade-

quate manner, accessory facilities, such as pipelines, communications, sanitation services and utilities, which serve the defense sites and are installed on land outside the defense sites. The United States Forces shall, at their cost, maintain and repair these facilities as necessary, in coordination with the proper entities of the Republic of Panama. Detailed identification of such facilities shall be made through the Joint Committee, within a period of six months from the entry into force of this Agreement unless extended by the Joint Committee for exceptional circumstances. The two Governments shall agree, through the Joint Committee, upon procedures to govern the appropriate use, access, maintenance and repair of these facilities. Similarly, procedures shall be agreed upon for coordination between the United States Forces and the competent Panamanian entities, concerning the use, access, maintenance and repair of such facilities as may serve the Republic of Panama and are situated within the defense sites.

#### ARTICLE XV

##### MOVEMENT, LICENSES AND REGISTRATION OF VESSELS, AIRCRAFT AND VEHICLES

(1) (a) When in the performance of official duties, the vessels and aircraft operated by or for the United States Forces may move freely through Panamanian air space and waters, without the obligation of payment of taxes, tolls, landing or pier charges or other charges to the Republic of Panama and without any other impediment.

(b) Such vessels and aircraft shall be exempt from customs inspections or other inspections. Whenever the same carry freight, crews or passengers who are not entitled to the exemptions provided for in this Agreement, prior notice shall be given to the appropriate Panamanian authorities. Both Governments shall adopt procedures to ensure that the laws and regulations of the Republic of Panama are not violated.

(2) (a) Similarly, the vehicles and equipment of the United States Forces may, when in the performance of official duties, move freely in the Republic of Panama, without the obligation of payment of taxes, tolls or other charges to the Republic of Panama and without any other impediment. These vehicles and equipment shall be exempt from mechanical or other inspection.



Claims arising from damage caused by the United States Forces to the Panamanian road network outside the defense sites, in excess of the usual wear and tear by reason of time and its appropriate use, shall be settled as provided for in Article XX.

(b) Such official vehicles and equipment shall not be assessed any license or registration fees. These vehicles shall bear their customary United States military identification marks and an additional means of identification as may be agreed upon by the Joint Committee, to be issued under the authority of said Joint Committee and distributed by the United States Forces.

(c) In connection with the movement of any military convoys, or any large number of vehicles as a single unit, outside of the defense sites, the United States Forces shall consult with the Combined Military Board so that, if time and circumstances permit, proper traffic arrangements will be made, including accompaniment by Panamanian traffic patrols.

(3) (a) The plates, individual marks and registration documents issued by the United States for vehicles, trailers, vessels and aircraft which are the property of the United States Forces shall be accepted by the Republic of Panama.

(b) The Republic of Panama shall recognize as sufficient, the valid licenses, permits, certificates or other official classifications from the United States Government, possessed by operators of vehicles, vessels and aircraft which are property of the United States Government.

(4) (a) The vehicles, trailers, vessels and aircraft belonging to the members of the Forces or the civilian component, or dependents, shall also move freely within the Republic of Panama, in compliance with the traffic regulations and those regarding the annual mechanical inspection. The license plate fee and other obligations shall not be discriminatory.

(b) The Republic of Panama shall issue, in accordance with its laws, the appropriate documents of title and registration of vehicles, trailers, vessels and aircraft which are the property of the members of the Forces or the civilian component, or dependents, when the latter present title and registration, issued by the federal or state authorities of the United States or by the authorities of the former Canal Zone. Applicants may retain such documents provided they leave with the Panamanian authorities a copy authenticated by the United States Forces, duly translated into Spanish.

While the corresponding request is being processed and within a term which may not exceed thirty days after its arrival in the Republic of Panama, the means of transportation mentioned above may be operated with the plates or distinctive marks issued by the United States federal or state authorities.

(c) The members of the Forces or the civilian component, and dependents, who bear drivers' licenses, vessel operators' permits, or licenses and classifications of air pilots issued by the federal or state authorities of the United States or by the authorities of the former Canal Zone, shall receive equivalent Panamanian licenses, permits and classifications without being subjected to new tests or payments of new fees. The applicants may retain the licenses, permits and classifications of the United States or the former Canal Zone provided that they leave with the Panamanian authorities a copy authenticated by the United States Forces and duly translated into Spanish. Members of the Forces or the civilian component, and dependents, shall be permitted to drive vehicles, vessels or aircraft in the Republic of Panama with such licenses, permits and classifications during the thirty days following their first arrival in the Republic of Panama and during the subsequent period necessary for the processing of the application in Panama for a driver's license, vessel operator's permit, or license and classification as an air pilot.

(d) The Panamanian licenses, permits or classifications shall be valid for the period of time indicated in the Panamanian law and, during the continuous presence of the bearer in Panama, shall, to preserve their validity, be renewed in accordance with Panamanian laws.

Whenever Panamanian laws may require medical certifications for the renewal of licenses, permits or classifications the Republic of Panama shall accept the certifications issued by the medical services of the United States Forces, provided that said certifications are issued in Spanish.

(e) The Republic of Panama shall issue, in accordance with its laws, drivers' licenses, vessel operators' permits, and licenses and other classifications of air pilots to members of the Forces or the civilian component, and dependents, when they do not possess such documents. If any test is required as a prerequisite for the issuance of the documents mentioned, Panama shall permit the interested persons to take the examination in Spanish or Eng-

lish. Any material which the Republic of Panama may generally issue in preparation for such examinations shall be furnished, in Spanish or English, as the applicant may request.

(5) Aircraft other than those of Panama and the United States may use the runways of the defense sites only after obtaining appropriate authorization from the Republic of Panama. When deemed convenient, the two Governments shall adopt, through the Joint Committee, regulations governing the use by such aircraft.

(6) The installation, change of position or alteration of lights and other signal installations to assist in navigation of aircraft, placed or established in the defense sites or in their surroundings, shall be subject to previous consultation between the appropriate authorities of both Governments.

(7) The Republic of Panama shall adopt such measures as may be appropriate to coordinate air traffic in the Republic of Panama, so that, in a manner consistent with the mission of the United States Forces, maximum safety shall be offered to civil and military air navigation. All systems of control and coordination of military air traffic shall be developed jointly as needed for the fulfillment of the specific purposes of this Agreement. The procedures needed to bring about this coordination shall be agreed upon by the appointed authorities of both Governments, respecting always the sovereignty of the Republic of Panama over all its air space.

The Republic of Panama agrees that, for security reasons, at the request of the United States Forces it shall restrict overflights of certain of the defense sites.

(8) The Joint Committee may agree on rules and procedures that may be necessary to implement this Article.

#### ARTICLE XVI

##### TAXATION

(1) By virtue of this Agreement, the United States Forces are exempt from payment in the Republic of Panama of all taxes, fees or other charges on their activities or property, including those imposed through contractors or subcontractors.

(2) Members of the Forces or the civilian component, and dependents, shall be exempt from any taxes, fees, or other charges on income received as a result of their work for the United States Forces

or for any of the service facilities referred to in Articles XI or XVIII of this Agreement. Similarly, as is provided by Panamanian law, they shall be exempt from payment of taxes, fees or other charges on income derived from sources outside the Republic of Panama.

(3) Members of the Forces or the civilian component, and dependents, shall be exempt from taxes, fees or other charges on gifts or inheritance or on personal property, the presence of which within the territory of the Republic of Panama is due solely to the stay therein of such persons on account of their or their sponsor's work with the United States Forces.

(4) The Joint Committee may establish such regulations as may be appropriate for the implementation of this Article.

#### ARTICLE XVII

##### IMPORT DUTIES

(1) Except for the exemptions provided for in this Agreement, the members of the Forces or the civilian component, and dependents shall be subject to the laws and regulations administered by the customs authorities of the Republic of Panama.

(2) All property imported for the official use or benefit of the United States Forces, including that imported by their contractors or subcontractors, in connection with the various activities authorized under this Agreement, shall be exempt from the payment of all customs duties or other import taxes and charges and from all license requirements.

The United States Forces shall issue a certificate, following the form adopted by the Joint Committee, stating that the property being imported is for these purposes.

(3) Property consigned to or imported for the personal use of the members of the Forces or the civilian component, or dependents shall be subject to the payment of import duties or other import taxes, except for the following:

(a) Furniture, household goods and personal effects imported by such persons for their private use within six months following their first arrival in the Republic of Panama. In the case of persons who are unable to obtain adequate housing when they first arrive in the Republic of Panama, an additional period of six months from the time they obtain

adequate housing shall be granted them for the importation of such articles, provided that the United States Forces issue a certificate stating that the person concerned has not accomplished such importation and indicating the date upon which he obtained adequate housing and its address.

(b) Vehicles imported by such persons for their private use, and the spare parts required for proper maintenance of such vehicles. The Joint Committee shall establish the limitations on the quantity and frequency of imports of such vehicles and parts;

(c) A reasonable quantity of articles for the private use of such persons, imported as personal baggage or sent into the Republic of Panama through the military post offices of the United States;

(d) Such other imports as may be expressly authorized by the competent authorities of the Republic of Panama at the request of the United States Forces.

(4) The exemptions granted in paragraph (3) of this Article shall apply only to cases involving the importation of articles exempted at the time of entry and shall not be construed as obligating the Republic of Panama to reimburse customs duties and domestic taxes collected by the Republic of Panama in connection with purchases of goods from Panamanian sources subsequent to their importation.

(5) Customs inspections shall not be made in the following cases:

(a) Members of the Forces traveling under orders, other than leave orders, who enter or depart from the Republic of Panama;

(b) Official documents under official seal and mail sent through the military postal channels of the United States;

(c) Cargo consigned to the United States Forces.

(6) Property imported under this Article and subsequently transferred to a person who is not entitled to duty-free importation shall be subject to the payment of import duties and other taxes according to the laws and regulations of the Republic of Panama. Such sales shall not be permitted when they are motivated by commercial purposes.

(7) All property imported into the Republic of Panama free of customs duties and other taxes pursuant to paragraphs (2) and (3) of this Article may be exported free of customs duties, export permits, or other export taxes and assessments. All property acquired in the Republic of Panama by, or in the name of, the United States Forces, or acquired by

members of the Forces or the civilian component, or dependents, for their private use may be exported free of customs duties, export licenses or other export taxes and charges.

(8) The authorities of the United States agree to cooperate with the authorities of the Republic of Panama and shall take, within their legal authority, all such steps as may be necessary to prevent the abuse of the privileges granted under this Article to the members of the Forces or the civilian component, or dependents.

(9) In order to prevent violations of the laws and regulations administered by the customs authorities of the Republic of Panama, the two Governments agree as follows:

(a) The authorities of the Republic of Panama and the competent authorities of the United States shall mutually assist one another in the conduct of investigations and the collection of evidence.

(b) The authorities of the United States shall take, within their legal authority, all necessary measures to ensure that articles subject to seizure by or in the name of the customs authorities of the Republic of Panama are delivered to these authorities.

(c) The authorities of the United States shall take, within their legal authority, all necessary measures to ensure the payment by members of the Forces or the civilian component, and dependents, of such import duties, taxes, and fines as may be duly determined by the Panamanian authorities.

(10) Vehicles and articles belonging to the United States Forces that are seized from a person by the authorities of the Republic of Panama in connection with a violation of its customs or tax laws or regulations shall be delivered to the competent authorities of the United States Forces.

(11) The Joint Committee will constitute the means of communication and information between the two Governments with regard to matters pertaining to the implementation of this Article.

## ARTICLE XVIII

### HEALTH, SANITATION AND EDUCATION

(1) The United States Forces may furnish educational, sanitary and medical services, including veterinary services, to the members of the Forces or the civilian component, and dependents, and other persons as may be agreed upon as exceptions by the two Governments through the Joint Committee.

(2) Matters of mutual interest relative to the control and prevention of diseases and the coordination of other public health, quarantine, sanitation and education services shall be the subject of coordination in the Joint Committee.

(3) The Republic of Panama authorizes the United States Forces, in rendering such health, sanitation and education services, to apply its own regulations.

## ARTICLE XIX

### SURVEYS

The United States may carry out topographic, hydrographic, agrologic and other surveys (including taking of aerial photographs) within the defense sites. Surveys in other areas of the Republic of Panama shall require authorization from the Republic of Panama, in the manner agreed upon in the Joint Committee, and the Republic of Panama shall, at its option, designate a representative to be present. The United States shall furnish a copy of the data resulting from such surveys to the Republic of Panama at no cost.

## ARTICLE XX

### CLAIMS

(1) Each Government waives its claims against the other Government for damage to any property owned by it and used by its land, sea or air armed services, in the following circumstances:

(a) If the damage was caused by a member or an employee of the armed services of the other Government, in the performance of his official duties; or,

(b) If the damage arose from the use of any vehicle, vessel or aircraft owned by the other Government and used by its armed services, provided either that the vehicle, vessel or aircraft causing the damage was being used for official purposes, or that the damage was caused to property being so used.

(2) In the case of damage caused or arising as stated in paragraph (1), to other property owned by either Government and located in the Republic of Panama, the claims shall be settled by the Government against which the claim is made. If it is not settled in due course, the claim may be pursued through diplomatic channels. Both Governments hereby waive the collection of any claims for an

amount less than \$1,400 U.S. or B/.1,400 which are of equal value.

(3) In cases of maritime salvage, each Government waives its claims against the other if the vessel or cargo salvaged was the property of the other Government and was used by its armed services for official purposes.

(4) For the purposes of this Article, any vessel chartered, requisitioned or seized in prize by a Government shall be considered its property (except to the extent that the risk of loss or liability is assumed by some other person than such Government).

(5) Each Government waives its claims against the other Government for injury or death suffered by any member of its armed services while said member was engaged in the performance of his official duties.

(6) The members of the Forces and the civilian employees of the United States Forces shall be subject to the jurisdiction of the civil courts of the Republic of Panama except in matters which arise from the performance of their official duty. In cases where payment has been accepted in full satisfaction of the claim, the civil courts of the Republic of Panama shall dismiss any proceeding concerning the matter.

(7) When personal private property subject to seizure or attachment by order of a competent authority under Panamanian law is within the defense sites, the United States authorities shall render, upon request of the Panamanian authorities, all assistance within their power in order that such property is turned over promptly to the Panamanian authorities. This paragraph shall not apply to personal property which, although privately owned, is in use by or on behalf of the United States Forces.

(8) Non-contractual claims arising from damages caused in the performance of their official duties by members or civilian employees of the United States Forces to third parties other than the two Governments shall be presented by the injured party through the Joint Committee to the appropriate authorities of the United States Forces for settlement. The authorities of the Republic of Panama may submit advice and recommendations on Panamanian law to the claim authorities of the United States for their use in evaluating liability and amount of damages.

(9) For other non-contractual claims against the members of the Forces or the civilian component, the authorities of the United States, following consulta-

tion with the appropriate authorities of the Government of Panama, shall consider the claim and, if appropriate, offer an *ex gratia* payment.

(10) The authorities of both Governments shall cooperate in the investigation and procurement of evidence for a fair disposition of claims under this Article.

(11) Contractual claims against the United States Forces shall be settled in accordance with the dispute clause of the contracts, and in the absence of such clause, through presentation of claims to the United States authorities through the appropriate channels.

(12) The United States Government shall require contractors and subcontractors referred to in Article XII of this Agreement to obtain appropriate insurance to cover the civil liabilities that may be incurred in Panamanian territory as a result of acts or omissions done in the performance of official duty by their employees. The Joint Committee shall establish the general standards for such insurance.

## ARTICLE XXI

### GENERAL PROVISIONS

(1) The activities and operations of the United States Government shall be carried out with adequate attention to public health and safety in the Republic of Panama. Within the defense sites, whose use Panama makes available to the United States by virtue of this Agreement, the United States authorities shall adopt all the appropriate measures to cooperate for these purposes with the authorities of the Republic of Panama.

(2) When required by their official duties, members of the Forces or the civilian component may possess and carry official arms and they will conform to any standards which the Joint Committee establishes. The members of the Forces or the civilian component, and dependents, may bear private arms in accordance with applicable Panamanian laws and regulations, and regulations of the United States Forces.

(3) The members of the Forces shall be obliged to observe proper conduct in accordance with the order and discipline required by Panamanian laws and the military laws and regulations of the United States. The authorities of the Republic of Panama shall maintain vigilance that Panamanian laws and regulations shall be observed at all times.

When the order and discipline referred to in this paragraph should be breached by members of the Forces outside the defense sites, and the authorities of the Republic of Panama, for reasons of language differences or other circumstances, consider it convenient, they may request the presence of personnel of the police of the United States Forces to cooperate in the reestablishment of order and discipline, and, in such cases, the United States Forces shall be obliged to send them.

Within the defense sites, the police function shall be primarily exercised by the police of the United States Forces. The Panamanian authorities shall cooperate with the United States Forces in the fulfillment of this function, for which purpose they may locate members of the Panamanian police within the defense sites at the headquarters of the police of the United States Forces or as the Joint Committee agrees. Such cooperation shall be rendered particularly in those cases involving Panamanian nationals.

The Joint Committee may also agree on a procedure so that members of the Panamanian police and the police of the United States Forces may jointly conduct routine inspections for the maintenance of order and discipline in those places where vigilance is especially required.

(4) The United States Forces shall restrict, to the maximum extent possible, the wearing of military uniforms so that they will be worn only when necessary. The Joint Committee shall adopt standards regarding the wearing of military uniforms in other cases, as exceptions.

## ARTICLE XXII

### DURATION

This Agreement shall enter into force when the Panama Canal Treaty signed on this date enters into force and shall terminate at noon, Panama time, on December 31, 1999.

DONE at Washington, this 7th day of September, 1977, in duplicate in the English and Spanish languages, both being equally authentic.

ANNEX A

DEFENSE SITES, MILITARY AREAS OF  
COORDINATION AND OTHER INSTALLATIONS

(1) The defense sites, military areas of coordination, and other installations, the use of which is made available by the Republic of Panama to the United States, are described below and identified, but not definitively, on the maps attached hereto and referenced herein, in the manner indicated on the legends thereof. When areas or installations are depicted on more than one map of different scales, the identification on the map with the largest scale shall be controlling. More precise identifications and exact boundaries shall be agreed upon as soon as practicable by the Joint Committee established in Article II of this Agreement after a Joint Survey to be conducted by representatives of the two Parties. When the aforementioned identifications have been completed and agreed upon, they shall be controlling as to the boundaries of the installations and areas described in this Annex.

(2) The defense sites are described generally as follows:

(a) Howard Air Force Base—Fort Kobbe—Farfan (including the Farfan Radio Receiver Facility, Farfan Annex), and United States Naval Station, Rodman, and Marine Barracks (including 193rd Brigade Ammunition Storage Area, Cocoli Housing Area and Arraijan Tank Farm) (Attachment 1);

(b) Fort Clayton—Corozal Army Reservation and Albrook Air Force Station (west) (Attachments 1, 2 and 3);

(c) Fort William D. Davis Military Reservation, to include Dock 45 and the adjacent water area and Atlantic general depot area, (Attachments 1 and 4);

(d) Fort Sherman Military Reservation, (Attachment 1); and

(e) Galeta Island; United States Navy Trans-isthmian Pipeline; and Semaphore Hill Long-Range Radar and Communications Link, (Attachment 1).

(3)(a) The Military Areas of Coordination are described generally as follows:

(i) General Military Areas of Coordination:

(aa) Quarry Heights, except for housing made available to Panama pursuant to paragraph (5)(b) of Annex B to this Agreement (Attachments 1 and 5);

(bb) United States Naval Station, Panama Canal, Fort Amador (Attachments 1 and 6); and

(cc) Fort Gulick (Attachments 1 and 7).

(ii) Military Areas of Coordination for Training (Attachment 1):

(aa) Empire Range;

(bb) Piña Range;

(cc) Fort Sherman West; and

(dd) Fort Clayton Training Area.

(iii) Military Areas of Coordination for Housing:

(aa) Curundu Heights, except for housing made available to the Republic of Panama pursuant to paragraph (5)(b) of Annex B to this Agreement (Attachments 1 and 8);

(bb) Herrick Heights (Attachments 1 and 9);

(cc) Coco Solo South (Attachments 1 and 10);

(dd) Fort Amador, except for Buildings 1 through 9, 45 through 48, 51, 57, 64 and 93, and for housing made available to the Republic of Panama pursuant to paragraph (5)(b) of Annex B to this Agreement (Attachments 1 and 11);

(ee) France Field (Attachments 1 and 12); and

(ff) Curundu Flats (Attachments 1 and 8).

(iv) Special Facilities:

(aa) Curundu Antenna Farm (Attachments 1 and 3);

(bb) United States Navy Communications Station, Balboa (Attachments 1 and 6);

(cc) Summit Naval Radio Station (Attachment 1);

(dd) Quarry Heights Communications Facility (tunnel) (Attachments 1 and 5);

(ee) Ancon Hill Communications Facilities (Attachments 1 and 5);

(ff) Battery Pratt Communications Facility (Coordinate 119326) (Attachment 1);

(gg) Ammunition Supply Point, Fort Gulick (Attachments 1 and 13);

- (hh) Navy Communications-Electric Repair Facility (Building 43-F) (Attachments 1 and 14);
  - (ii) United States Army Transport-Shipping Facility (Building 39-C) (Attachments 1 and 14);
  - (jj) Gorgas Hospital Complex (Buildings 223, 233, 237, 238, 240, 240-A, 241, 241-A, 242, 253, 254, 255, 257, 257-G, 261, hospital grounds, and building 424) (Attachments 1 and 9);
  - (kk) Coco Solo Hospital (Buildings 8900, 8901, 8902, 8904, 8905, 8906, 8907, 8908, 8910, 8912, 8914, 8916, 8920, 8922, 8926, tennis court, grounds and miscellaneous buildings and structures) (Attachment 1);
  - (ll) Balboa High School (Buildings 74, 701, 702, 704, 705, 706, 707, 713-X, Stadium, 723, 723-A, 723-B, 723-C, 723-D, 723-E, 723-F, 723-G, parking area, and play slab) (Attachments 1, 14, 15 and 16);
  - (mm) Curundu Junior High School (Buildings 0615-A, 0615-B, 0615-C, 0615-D, 0615-F, cooling tower structure, playgrounds, tennis courts, and equipment, storage and music buildings, swimming pool and bathhouse, and parking areas (Attachments 1 and 8);
  - (nn) Cristobal Junior High School (Buildings 1141, 1143, 1149, 1150, 1151, 1153, 1154, 1156, 1239, 1158, 1186, 1288, 2000, playfield, and parking areas) (Attachments 1 and 10);
  - (oo) Balboa Elementary School (Buildings 709, 710, playground, and parking area) (Attachments 1, 15 and 16);
  - (pp) Diablo Elementary School (Buildings 5534, 5536, 5634, 5636, 5638, playground, air conditioning building, and parking area) (Attachments 1 and 17);
  - (qq) Los Rios Elementary School (Buildings 6225, 6226, playground, parking area and chilled water building) (Attachments 1 and 18);
  - (rr) Gamboa Elementary School (Buildings 56, 56-A, playground, and parking area) (Attachments 1 and 19);
  - (ss) Coco Solo Elementary School (Buildings 98, 98-A, parking area, playground and chilled water building) (Attachments 1 and 20);
  - (tt) Margarita Elementary School (Buildings 8350, 8352, playground, parking area, chilled water building and storage building) (Attachments 1 and 21);
  - (uu) Fort Gulick Elementary School (Buildings 350, 351, 352, playground and parking area) (Attachments 1 and 7);
  - (vv) Canal Zone College (Buildings 1030, 1031, 1032, 1033, 1034, 1035, 980, 982, 838, athletic field and parking lots) (Attachments 1, 15 and 22);
  - (ww) Ancon School Administration Office (Partial use of Panama Canal Commission Building 0610) (Attachments 1 and 9);
  - (xx) Margarita Community Health Center (Partial use of Panama Canal Commission Building 7998) (Attachments 1 and 21);
  - (yy) Gamboa Community Health Clinic (Use of Panama Canal Commission Building 63) (Attachments 1 and 19);
  - (zz) Ancon Dental Clinic (Building 287-X, partial use of Panama Canal Commission Building 287) (Attachments 1 and 9);
  - (aaa) Corozal Mental Health Center (Buildings 6521, 6523, 6524, 6525, 6526, 6537 and grounds) (Attachments 1, 18 and 23);
  - (bbb) Corozal Animal Care Station/Veterinary Hospital (Buildings 6553, 6554, 6555, and grounds) (Attachments 1 and 18);
  - (ccc) Corozal Cemetery (Buildings and facilities) (Attachments 1, 18 and 23);
  - (ddd) Balboa Community Health Center (Use of Panama Canal Commission Building 721) (Attachments 1 and 15); and
  - (eee) Coco Solo Community Health Center (Room in Building 1140) (Attachments 1 and 20).
- (b) The following installations, not contiguous to the defense sites or military Areas of Coordination,

which shall be subject to the provisions of the Panama Canal Treaty and this Agreement applicable to the Military Areas of Coordination are described generally as follows:

- (i) Buildings 430, 433 and 435 in the Corozal Antenna Field (Attachments 1 and 2);
- (ii) AAFES Warehouse, Building 1008 and 1009 (Attachments 1 and 3);
- (iii) United States Army Meddac Warehouses, Buildings 490 and 1010 (Attachments 1 and 3);
- (iv) Defense Mapping Agency—Inter-American Geodetic Survey Headquarters and warehouse, Buildings 1019, 1007 and 1022 (Attachments 1 and 3);
- (v) Balboa West bombing range, as defined by coordinates PA 350056, PA 381074, PV 433990 and PV 404799 (Attachment 1);
- (vi) United States Navy Salvage Storage Area, Building 29-B (Attachments 1 and 14);
- (vii) United States Army NBC Chambers, Buildings 922, 923, 924, 925, 926 and 927 (Attachments 1 and 8);
- (viii) United States Air Force Communications Group storage/training facility, Building 875 (Attachments 1 and 8);
- (ix) Inter-American Air Force Academy Jet Engine Test Cell, Building 1901 (Attachments 1 and 8);
- (x) Quarry Heights Motor Pool (Building 159) (Attachments 1 and 5);
- (xi) Ammunition Transfer Point, Cerro Pelado (Coordinates 415083) (Attachment 1); and
- (xii) Fort Amador (Buildings S-103, 104, 105, 105-A, 105-B, 107, 110, 190, 218, 228, 229, 268, 270) (Attachments 1 and 11).

(c) The following areas described in paragraph (a) above shall cease to be Military Areas of Coordination three years from the entry into force of this Agreement:

- (i) Curundu Antenna Farm;
- (ii) Curundu Heights Housing Area; and
- (iii) Barracks facilities at Fort Gulick for a company of the Forces of the Republic of Panama in specific buildings as agreed in the Joint Committee.

(d) The following areas described in paragraph (a) above shall cease to be Military Areas of Coordination five years from the entry into force of this Agreement:

- (i) Fort Gulick, except for family housing, community service areas, and the ammunition storage facility; and
- (ii) France Field.

(e) The following areas described in paragraph (a) above shall cease to be Military Areas of Coordination during the life of this Agreement:

- (i) Fort Clayton Training Area;
- (ii) Fort Amador;
- (iii) Fort Gulick Family Housing, community service areas and the ammunition storage facility;
- (iv) Coco Solo Family Housing; and
- (v) That portion of the Curundu Flats Housing Area comprising the contractors' trailer housing area.

(4) The installations outside of the defense sites, which may be used as provided in Article XI, are described generally as follows:

(a) Miscellaneous facilities as follows: Post Exchange Facility in Building 100, Coco Solo; packing and crating Building 406, Albrook; Post Exchange warehouse, Building 304; household goods crating warehouse, Building 1081; Contractor's air conditioning facility, Building 1002; and household goods warehouse, Building 1067 (Attachments 1, 3, 8 and 20);

(b) Recreational Facilities as follows: Camp Chagres Boy Scout Camp at Madden Dam; and Surfside Theater at Naos Island (Attachment 1); and

(c) Post Exchange Facility, Curundu, Buildings 1025, 1026 and 1027; Photo Shop Building 821 (Attachments 1, 3 and 8).

## ANNEX B

### TERMS FOR ADMINISTRATION OF MILITARY AREAS OF COORDINATION

(1) Purpose: To establish and delineate the respective responsibilities of the United States Forces and the Forces of the Republic of Panama concerning certain areas which the Republic of Panama makes available for coordinated use by the United States Forces and the Forces of the Republic of Panama.



(2) Definitions:

(a) Military Areas of Coordination (sometimes hereinafter referred to as "Areas") are those areas, and the facilities within them, outside of defense sites, which the Republic of Panama by this Agreement authorizes the United States to use for purposes of communications and military training, and for housing and support of members of the Forces, the civilian component, and dependents; and for other purposes, as the two Parties may agree. A list of these Areas is set forth in Annex A to this Agreement.

(b) Security includes those measures taken to provide physical protection and limit access to or egress from a Military Area of Coordination.

(c) Exterior security measures are applicable only outside the boundaries of Military Areas of Coordination.

(d) Interior security measures are applicable only inside the boundaries of Military Areas of Coordination.

(3) General Conditions:

(a) The Republic of Panama authorizes the United States to use and maintain Military Areas of Coordination for the purposes of the Panama Canal Treaty. Signs exterior to Military Areas of Coordination will indicate that such Areas are operated under a grant of authority from the Republic of Panama. Only the flag of the Republic of Panama shall be flown in Military Areas of Coordination, including at their entrances, except that, as provided in Article VII of the Panama Canal Treaty, the flags of both the Republic of Panama and the United States may be flown at the site of the Combined Board, which shall be located at Quarry Heights.

(b) All rights, privileges and immunities, which the United States possesses with respect to defense sites under this Agreement shall apply equally with respect to the Military Areas of Coordination, except as limited or excluded in this Annex.

(c) The security of the Military Areas of Coordination shall be the combined responsibility of the United States Forces and the Forces of the Republic of Panama. The Forces of the Republic of Panama shall have the responsibility for maintaining exterior security for these Areas, except where the boundary of such an area coincides with the boundary of a defense site. The United States Forces may assist the Forces of the Republic of Panama in combined stations and patrols as mutually agreed. The senior

United States Commander shall have the responsibility for interior security, including control of access to these Areas. Joint United States/Republic of Panama Military police patrols will be used within the Military Areas of Coordination, except within the Special Facilities referred to in paragraph 6 of this Annex. The United States Forces shall be responsible for the command, supervision and protection of their personnel, facilities and equipment within the Areas. The Forces of the Republic of Panama shall be responsible for the command, supervision, and the protection of their personnel and equipment and of the facilities they use within the Areas. The members of the Forces, civilian component and dependents, shall have free unrestricted access to the Areas.

(d) No change in the basic character and functions of Military Areas of Coordination shall be made except by mutual consent of the United States Forces and Forces of the Republic of Panama through the Joint Committee or in accordance with Article IV of this Agreement.

(e) The Combined Board, which is established in Article IV of the Panama Canal Treaty, will be the body in which the United States Forces and the Forces of the Republic of Panama will consult regarding joint training in the Military Areas of Coordination, including construction of new training facilities.

(f) The Joint Committee, established in Article III of this Agreement will be the body in which the United States Forces and the Armed Forces of the Republic of Panama will consult for the purpose of administration of the Military Areas of Coordination.

(g) All signs, posters, and notices of general interest within, and at the entrances to, Military Areas of Coordination will be written in the Spanish and English languages.

(h) A Liaison Office of the Forces of the Republic of Panama may be established within each Military Area of Coordination, as mutually agreed.

(i) The Republic of Panama authorizes the United States Forces to apply its own regulations concerning fire prevention, safety, and sanitation standards in Military Areas of Coordination.

(4) Military Areas of Coordination for Training:

(a) The Military Areas of Coordination for Training identified in Annex A to this Agreement will be available to both the United States Forces

and the Forces of the Republic of Panama for the conduct of training.

(b) The United States Forces shall have the responsibility for scheduling the use of the Training Areas for the duration of this Agreement.

(c) The United States agrees to increased use of Training Areas by the Forces of the Republic of Panama over the life of this Agreement, in accordance with agreed arrangements of the Combined Board.

(d) Except as otherwise provided in this Annex, the United States Forces shall have the responsibility for internal control and management of the Training Areas.

(e) The Commanding Officer of the forces using the Training Areas at any given time will be responsible for the safety of all ranges and firing positions during such use, in accordance with established regulations, subject to the authority of the responsible United States Forces Commander only with respect to matters related to range safety.

(5) Military Areas of Coordination for Housing:

(a) Military Areas of Coordination for Housing are separately identified in Annex A to this Agreement.

(b) These areas shall be available for occupancy by members of the Forces or the civilian component, and dependents. Selected housing units will be made available to the Republic of Panama, as may be mutually agreed.

(c) No new housing units will be constructed in Military Areas of Coordination by the United States.

(6) Special Facilities:

(a) Special facilities located in Military Areas of Coordination are separately identified in Annex A to this Agreement.

(b) With respect to such special facilities, the United States authorities shall be responsible for all interior security to include entrance and exit guards. Only authorized personnel as determined by the United States authorities will be admitted to such facilities.

ANNEX C

APPLICATION OF PANAMANIAN SOCIAL SECURITY

(1) The provisions for Employee Social Security, retirement benefits, and health benefits coverage, set forth in paragraphs 1-4 of Article VIII of the Agreement in Implementation of Article III of the

Panama Canal Treaty shall be applicable, *mutatis mutandis*, to employees of the United States Forces and to those employees who may be transferred from the Panama Canal Commission to the United States Forces.

(2)(a) Non-United States citizen employees who are not covered by the Civil Service Retirement System of the United States, or employees paid by United States non-appropriated fund instrumentalities, shall be covered by Panamanian Social Security from the date this Agreement enters into force, with contributions paid by the insured and the employer according to the rates established by the Social Security Laws of the Republic of Panama.

(b) The United States shall request the necessary legislation to pay each such employee a retirement similar to that of the Social Security System of the Republic of Panama.

ANNEX D

PROCEDURAL GUARANTEES

A member of the Forces or the civilian component, or a dependent, prosecuted by the Panamanian authorities shall be entitled to the following procedural guarantees:

(a) To a prompt and speedy trial.

(b) To be informed, in advance of trial, of the specific charge or charges made against him.

(c) To be confronted with and to be allowed to cross-examine the witnesses against him.

(d) To have evidence and witnesses in his favor presented. The authorities shall submit such evidence and call the witnesses if they are within the Republic of Panama.

(e) To have legal representation of his own choice for his defense during all investigative and judicial phases from the time of submission to questioning and throughout the entire proceedings; or, if he indicates he lacks funds for his defense, to be defended by the appropriate public defender.

(f) To have the services of a competent interpreter if he considers it necessary.

(g) To communicate with a representative of the Government of the United States and to have such a representative present, as an observer, at his trial.

(h) Not to be held guilty on account of any act or omission which did not constitute a criminal offense under the law of the Republic of Panama at the time it was committed.

(i) To be present at his trial which shall be public. However, without prejudice to the procedural guarantees in this Annex, persons whose presence is not necessary may be excluded, if the court so decides for reasons of public order or morality.

(j) In his proceedings to have the total burden of proof laden upon the Public Prosecutor or the prosecution.

(k) To have the court consider only voluntary confessions and evidence properly obtained in accordance with the requirements of the law.

(l) Not to be compelled to testify against or otherwise incriminate himself.

(m) Not to be required to stand trial if he is not physically or mentally fit to stand trial and participate in his defense.

(n) Not to be tried or punished more than once for the same offense.

(o) To have the right to appeal a conviction or sentence.

(p) To have credited to any sentence for confinement his entire period of pre-trial custody.

(q) Not to be subject to the application of martial law or trial by military courts or special tribunals.

(r) To enjoy other guarantees and rights provided for in the Constitution, Judicial Code and other laws of the Republic of Panama.

#### AGREED MINUTE TO THE AGREEMENT IN IMPLEMENTATION OF ARTICLE IV OF THE PANAMA CANAL TREATY

1. With reference to paragraph 5(c) of Article VI of the Agreement in Implementation of Article IV of the Panama Canal Treaty (hereinafter referred to as "the Agreement"), the five offenses under Panamanian law referred to therein are understood to be:

(a) "Murder" means the intentional killing of one person by another.

(b) "Rape" means the commission of an act of sexual intercourse by violence or threat and without consent with a person not his spouse, or with a person who is not capable of resisting by reason of mental or physical illness, or with a minor less than twelve years old.

(c) "Robbery with violence" means the act of appropriating an object of value belonging to someone else with the purpose of depriving its owner of

his possession and deriving benefit from it, using violence against such person or a third person present at the scene of the act.

(d) "Trafficking in drugs" means the unlawful sale, exchange or transfer for gain of marihuana, hashish, heroin, cocaine, amphetamines, barbiturates, or L.S.D.

(e) "Crimes against the security of the Panamanian State" means espionage, sabotage, or terrorism directed against the constituted powers or authorities of Panama, with the purpose of overthrowing them.

2. With reference to paragraphs (2) and (3) of Annex A, it is understood that the United States agrees to the construction by the Republic of Panama of an Atlantic Coast Highway, and a new highway on the Pacific side of the Isthmus, at locations and with right of way widths to be mutually agreed. It is further understood that the bridge over the Canal, in each case, will be of a design sufficiently high so that it will not interfere with the operation of the Canal or with any improvement that may be made to the Canal.

3. With reference to paragraph (2)(a) of Annex A, it is understood that the United States agrees to the construction by the Republic of Panama of a road from Panama City to Vera Cruz at a location to be agreed upon by the Parties, the use of which will be subject to certain agreed conditions and restrictions, which will include the following:

- The right of way through the defense site shall be used only for the construction, use and maintenance of the road,
- The United States Forces shall have access to the right of way and the right to cross it at any point.

It is understood that upon completion of such road, the access road through Howard Air Force Base to Vera Cruz may be closed by the United States to through traffic. It is further understood that the Republic of Panama will preclude any activity in the coastal areas in the vicinity of Kobbe and Venado Beaches which, in the determination of the United States Forces, might interfere technically with the activities of the United States Navy Receiver Site at Farfan, the United States Air Force communications activity in the vicinity of the Howard/Kobbe Defense Sites, and aircraft operations at Howard Air Force Base.

An illustrative listing of activities which would interfere with aircraft operations at Howard Air Force Base is as follows:

- Any construction within 1 kilometer on either side of the runway as extended to the sea.
- Construction of structures or objects more than 8 meters high in an area from 1 to 3 kilometers east of the runway as extended to the sea.
- Construction of structures or objects more than 8 meters high in an area from 1 to 2 kilometers west of the runway as extended to the sea.

It is further understood that the general public shall have free access to those portions of Venado and Kobbe Beaches lying within defense sites, in accordance with procedures to be developed by the Joint Committee.

4. With reference to paragraph (2)(b) of Annex A, it is understood that the airstrip at Albrook Air Force Station which is transferred to the Republic of Panama as provided in Article XIII of the Panama Canal Treaty, will not be used for any aviation flight purposes other than helicopter operations. It is further understood that the United States Forces may conduct helicopter operations on the west taxiways, adjacent grassy areas and runway at Albrook Air Force Station until such time as the Republic of Panama determines that development of this area adversely affects flight safety.

5. With reference to paragraphs (2)(c), (2)(d), (3)(a)(ii)(bb) and (3)(a)(ii)(cc) of Annex A, it is understood that the general public shall have free access to and use of the R-6, 836, R-2, S-10, S-2, and S-8 Roads.

6. With reference to paragraph (2)(e) of Annex A:

(a) it is understood that the Republic of Panama will restrict any activity within a 6,000 foot radius of the Galeta operating antenna (coordinates 238393) which, in the determination of the United States Forces, might interfere technically with the communications at Galeta. It is further understood that there will be no construction within a 10,500 foot radius of the Galeta operating antenna for purposes of heavy industry or of installations with high voltage electrical emission, unless the two Parties otherwise agree;

(b) it is understood that the Republic of Panama shall keep the R-12 Road open from Coco Solo to Galeta Island; and

(c) it is understood that the United States will consider authorizing use by the Republic of Panama of the Navy pipelines, under terms and conditions to be mutually agreed.

7. With reference to paragraph (3)(a)(i)(aa) of Annex A, it is understood that the United States shall have use of and access rights to a helicopter landing site at grid coordinates 596898, in accordance with procedures to be developed by the Joint Committee.

8. With reference to paragraphs (3)(a)(i)(bb) and (3)(a)(iii)(dd) of Annex A, it is understood that the United States Forces and the Forces of the Republic of Panama will permit the general public to have free access to the Amador Road. It is further understood that the Joint Committee shall agree upon the location and operating procedures for a joint control point. Until such a new control point is established, the present entrance control point shall remain in operation and members of the Forces of the Republic of Panama shall participate with the United States Forces in its manning. It is also understood that joint patrols of the United States Forces and of the Forces of the Republic of Panama shall patrol the Amador Road. Such joint patrols shall be conducted in accordance with the procedures established for joint patrols in Article XI of the Panama Canal Treaty. It is further understood that the members of the Forces of the Republic of Panama and of the United States Forces, the civilian component, and dependents shall have free access to and use of the beach at Naos Island.

9. With reference to paragraphs (3)(a)(ii)(bb) and (cc) of Annex A, it is understood that the Republic of Panama shall maintain the S-10 Road open from Escobal north along the West Bank of the Canal from coordinates 140115 to 160228 in order to permit access to and from Piña Range and Fort Sherman West Training Area.

10. With reference to paragraph 3(a)(iii)(ff) of Annex A, it is understood that joint military patrols of the United States Forces and the Forces of the Republic of Panama shall patrol the C-12 Road from coordinates 591939 to 601927. Such joint patrols shall be conducted in accordance with the procedures established for joint patrols in Article XI of the Panama Canal Treaty.

11. With reference to paragraph (3)(a)(iv)(ee) of Annex A, it is understood that the Republic of Panama will preclude any activity on Ancon Hill which, in the determination of the United States

Forces, might interfere technically with the communications activity of the United States Forces or of the Federal Aviation Administration on Ancon Hill.

12. With reference to paragraphs (3)(b) (ii), (iii) and (iv) and (3)(b)(vi) of Annex A, it is understood that the following facilities shall cease to be areas of coordination as stated:

—United States Navy Salvage Storage Area, Building 29B—Five years from the entry into force of the Agreement.

—Buildings 1008 and 1009—Three years from the entry into force of the Agreement.

—Buildings 490 and 1010—Two years from the entry into force of the Agreement.

—Buildings 1019, 1007 and 1022—One year from the entry into force of the Agreement.

13. With reference to paragraph (3)(b)(v) of Annex A, it is understood that the Balboa West Bombing Range will cease to be subject to the provisions of Annex B to this Agreement at such time as the Republic of Panama provides an alternative facility, acceptable to the United States, for the use of the United States Forces as a bombing range.

14. With reference to paragraph (5)(b) of Annex B, it is understood that the selected housing units

to be made available by the United States to the Republic of Panama shall include:

(1) Upon entry into force of the Agreement:

(a) Two family housing units at Quarry Heights for officers of the Forces of the Republic of Panama serving on the combined Board;

(b) Eight family housing units in Fort Amador for members of the Forces of the Republic of Panama assigned to Fort Amador. It is further understood that the members of the Forces of the Republic of Panama residing at Fort Amador may use the community facilities at Fort Amador under the same conditions as are applicable to the United States Forces.

(c) Twenty family housing units at Curundu Heights.

(2) Within three years after the entry into force of the Agreement, all family housing units at Curundu Heights. It is understood that the laundry and the Bachelor Officers' housing units at Curundu Heights are not family housing units and will remain under the control of United States Forces for the duration of the Agreement.

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**Maps of the Land and Water Areas for the  
Operation and Defense of the Panama Canal,  
Referred to in the Agreement in Implementa-  
tion of Articles III and IV of the Panama Canal  
Treaty**

[The maps are not printed here. The map atlas is deposited in the archives of the Department of State where it is available for reference.]

**Exchange of Notes Relating to Postal Services**

DEPARTMENT OF STATE  
WASHINGTON

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to confirm our understanding, reached during the negotiation of the Panama Canal Treaty, that the postal services of the United States Forces and of the Republic of Panama shall establish appropriate arrangements through the Joint Committee whereby mail being handled by both postal systems may be delivered by the Postal Service of the Republic of Panama through existing postal facilities in the Canal operating areas and housing areas.

Further, it is understood, with respect to Article X of the Agreement in Implementation of Article IV of the Panama Canal Treaty, that the Republic of Panama will furnish space in the Balboa Post Office (Building 724) and within the area in the Cristobal Administration Building (Building 1105) made available to the Postal Service System of the Republic of Panama, which the United States Forces may use for bulk mail sorting and as postal distribution points, under procedures to be developed by the Joint Committee.

If the foregoing is acceptable to you, I have the honor to suggest that this note and your reply thereto indicating acceptance shall constitute an agreement between our two Governments concerning this matter, which will enter into force on the date of the entry into force of the Panama Canal Treaty.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:  
ELLSWORTH BUNKER  
*Ambassador at Large*

His Excellency  
RÓMULO ESCOBAR BETHANCOURT,  
*Chief Negotiator.*

*Translation*

EMBASSY OF PANAMA  
WASHINGTON D.C. 20008

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to acknowledge receipt of Your Excellency's note of today's date, which reads as follows:

[There follows Ambassador Bunker's note, quoted in English.]

I also have the honor to confirm on behalf of my Government the foregoing arrangements and to concur that Your Excellency's note and this note shall constitute an agreement between our two Governments concerning this matter, which shall take effect on the date of the entry into force of the Panama Canal Treaty.

Accept, Excellency, the renewed assurances of my most distinguished consideration.

RÓMULO ESCOBAR B.

Rómulo Escobar Bethancourt  
*Chief Negotiator*

His Excellency  
ELLSWORTH BUNKER,  
*Ambassador at Large*  
*of the United States of America.*

**Exchange of Notes Relating to Use of Commissary and Post Exchange Facilities**

DEPARTMENT OF STATE  
WASHINGTON

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to confirm that with respect to Article XII of the Agreement in Implementation of Article III of the Panama Canal Treaty, it is understood that immediately following the exchange of instruments of ratification, the United States Forces will conduct a thorough study of the feasibility of accommodating the persons authorized to use commissary and post exchange facilities at installations within the defense sites and other areas which the Republic of Panama permits the United States to use in accordance with the Agreement in Implementation of Article IV of the Panama Canal Treaty.

Following the entry into force of that Treaty, the United States will take all practicable steps to accommodate such persons at facilities within defense sites and such other areas. If the United States Forces find that such persons cannot practicably be so accommodated, the United States Forces may, for the purpose of providing commissary and post exchange services, use the installations listed in paragraphs 1(c)(iii)(A) and 1(e)(iii)(B) of Annex A to the Agreement in Implementation of Article III of the Panama Canal Treaty for a period of six months following the entry into force of the Treaty.

The Republic of Panama agrees that upon the written request of the United States, through the Joint Committee, that six month period of use will be extended until such time as the United States Forces determine it to be practicable to accommodate such persons within the defense sites and such other areas. In no event, however, will the total period of such use exceed 30 calendar months following the entry into force of the Treaty, unless the two Parties otherwise mutually agree.

If the foregoing proposal is acceptable to you, I have the honor to suggest that this note and your reply thereto indicating acceptance shall constitute

an agreement between our two Governments concerning this matter, which will enter into force on the date of the exchange of ratifications of the Panama Canal Treaty, and shall become effective on the date of the entry into force of the Panama Canal Treaty.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State

ELLSWORTH BUNKER

Ellsworth Bunker  
*Ambassador at Large*

His Excellency

RÓMULO ESCOBAR BETHANCOURT,  
*Chief Negotiator.*

*Translation*

EMBASSY OF PANAMA  
WASHINGTON, D.C. 20008

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to acknowledge receipt of Your Excellency's note of today's date, which reads as follows:

[There follows Ambassador Bunker's note, quoted in English.]

I also have the honor to confirm on behalf of my Government the foregoing arrangements and to concur that Your Excellency's note and this note shall constitute an agreement between our two Governments concerning this matter, which will enter into force on the date of the exchange of the instruments of ratification of the Panama Canal Treaty, and shall take effect on the date of the entry into force of the Panama Canal Treaty.

Accept, Excellency, the renewed assurances of my most distinguished consideration.

RÓMULO ESCOBAR B.

Rómulo Escobar Bethancourt  
*Chief Negotiator*

His Excellency

ELLSWORTH BUNKER,

*Ambassador at Large*

*of the United States of America.*

**Letter Describing Application of the Wholesale Price Index Referred to in Paragraph 4(A) of Article XIII of the Panama Canal Treaty**

DEPARTMENT OF STATE  
AMBASSADOR AT LARGE  
WASHINGTON

SEPTEMBER 7, 1977

DEAR AMBASSADOR ESCOBAR:

As was discussed during our negotiations, I am pleased to furnish information on the application of the Wholesale Price Index referred to in paragraph 4(A) of Article XIII of the new Panama Canal Treaty.

The Wholesale Price Index for Total Manufactured Goods of the United States is understood by the United States to refer to the seasonally adjusted figure for Total Manufactured Goods found in Table 3, "Wholesale Price Indexes for Selected Groupings Unadjusted and Seasonally Adjusted," of the

monthly report of the Department of Labor "Wholesale Prices and Price Indexes." Enclosed is a copy of the latest monthly report published by the Department of Labor entitled "Wholesale Prices and Price Indexes" which describes the method of calculation of the indexes.

The new rate shall be determined by multiplying the rate of 30 cents per Panama Canal ton by a fraction the numerator of which is the average index for the twelve months ending the biennial period and the denominator of which is the average index of the twelve months preceding the first biennial period.

Sincerely,

ELLSWORTH BUNKER  
Ellsworth Bunker

Enclosure:  
Wholesale Prices and Price Indexes\*

His Excellency

RÓMULO ESCOBAR BETHANCOURT

*Chief Treaty Negotiator for Panama*

\*Not printed here.

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**Letter Regarding Termination of Article XVII of the United States-Panama Air Transport Services Agreement**

DEPARTMENT OF STATE  
WASHINGTON

SEPTEMBER 7, 1977

DEAR DR. ESCOBAR:

This is to confirm our understanding, reached in connection with the negotiation of the Panama Canal

Treaty, that upon entry into force of that Treaty, Article XVII of the United States-Panama Air Transport Services Agreement, signed at Panama March 31, 1949, will have no further application.

Sincerely,

ELLSWORTH BUNKER  
Ellsworth Bunker  
*Ambassador at Large*

His Excellency

Dr. RÓMULO ESCOBAR BETHANCOURT,  
*Chief Negotiator.*



## OTHER DOCUMENTS

### Agreement on Certain Activities of the United States of America in the Republic of Panama

Taking account of the Panama Canal Treaty and related agreements signed this date by representatives of the United States of America and the Republic of Panama, the two Governments confirm their understanding that, in addition to the activities directly related to the specific purpose of the Panama Canal Treaty, the United States may conduct certain other activities in the Republic of Panama. Such other activities shall be conducted in accordance with the provisions of this Agreement.

1. The United States may conduct the following activities in the Republic of Panama:

- (a) Tropic testing;
- (b) Telecommunications, meteorological, navigational, and oceanographic activities;
- (c) Activities of the Inter-American Geodetic Survey;
- (d) Humanitarian relief operations, including search and rescue;
- (e) Schooling of Latin American military personnel.

2. In order to carry out these activities, the United States may use installations within defense sites and military areas of coordination, and in such other areas of the Republic of Panama as may be mutually agreed.

3. The Agreement in Implementation of Article IV of the Panama Canal Treaty shall apply to the conduct of these activities in the Republic of Panama, except as otherwise provided by arrangements between the two Parties.

(a) Active duty military personnel of the United States armed services assigned to these activities shall be considered to be "members of the Forces" within the meaning of the Agreement in Implementation of Article IV.

(b) Employees of the United States assigned to these activities who are nationals of the United States to whom United States passports have been

issued or who are nationals of third countries who are not habitual residents of the Republic of Panama shall be considered to be "members of the civilian component" within the meaning of the Agreement in Implementation of Article IV.

(c) The spouse and children of persons referred to in sub-paragraphs (a) and (b) above, and other relatives of such persons who depend on them for their subsistence and who habitually live with them under the same roof, shall be considered to be "dependents" within the meaning of the Agreement in Implementation of Article IV.

(d) Military personnel of other Latin American countries assigned to school duty in the Republic of Panama pursuant to paragraph (1)(e) of this Agreement shall be entitled to the privileges authorized under Articles XI and XVIII of the Agreement in Implementation of Article IV.

4. Changes in the activities listed above may be agreed upon by the two Parties through the Joint Committee created by Article III of the Agreement in Implementation of Article IV.

This Agreement shall enter into force simultaneously with the entry into force of the Panama Canal Treaty, and expire when that Treaty expires; provided, however, that the authority of the United States to conduct schooling of Latin American military personnel in the United States Army School of the Americas shall expire five years after the entry into force of the Panama Canal Treaty unless the two Governments otherwise agree.

#### ATTACHMENT

The following is an illustrative description of the manner in which the activities listed in paragraph 1 of the Agreement on Certain Activities of the United States in Panama are presently conducted:

##### A. Tropic Testing

1. The United States Army Tropic Test Center (USATTC) plans, conducts and reports on tropic environmental phases of development tests and provides advice and guidance on tropic test and evalua-

tions matters to materiel developers, materiel producers, other services, and private industry.

2. Many of the marked climatic, seismic, and biological variations which exist in tropical areas of the world are represented in Panama, providing a singular geographic area in which military hardware can be subjected to tropic environmental extremes.

3. The Center occupies office, barracks, laboratory, maintenance and supply building space, and uses outlying test facilities consisting of 18,868 acres of real estate. These outlying test facilities are: Chiva Chiva test area; Battery McKenzie; Firing Point #6, Empire Range; and Gamboa test area. The latter area consists of approximately 7500 hectares of land located along both sides of the pipeline road from the town site of Gamboa to Gatun Lake, bounded approximately by map coordinates 410085, 355080, 282198, 310217, 375164, 410110. It has been used for developmental tests and for methodology studies which provide background for studying the effects of a tropic environment on men and materiel. Range areas of the 193d Infantry Brigade, Empire Range, Piñas Light Artillery Range and Piñas Beach are also used by USATTC.

#### B. Telecommunications, Meteorological, Navigational, and Oceanographic Activities

1. Military Affiliate Radio Station (MARS): serves as a backup communication capability for the military services. Provides morale, health, and welfare communication for military services. Has capability to link with MARS affiliates in the United States.

2. USSOUTHCOM Mission Radio Station: provides voice communications between USSOUTHCOM elements in Panama and United States Military Groups in Central and South America.

3. Inter-American Military Networks:

- a. The Inter-American Military Network (RECIM) Station.
- b. The Inter-American Telecommunications System for the Air Force (SITFA) Station.
- c. The Inter-American Naval Telecommunications Network (IANTN).

These United States military stations in three international networks provide a rapid means of communications among the military services of Latin America on military matters. Most Latin American countries operate their own station in each of these networks.

4. United States Navy Timation Station: A Navy satellite tracking site sponsored by the Navy Research Laboratory (NRL). The tracking station is part of an overall Department of Defense program called the NAVSTAR Global Positioning System (GPS). The GPS program is directed toward the development and ultimate establishment, by the 1980's, of a system of 24 navigational satellites.

5. United States Army Atmospheric Sciences Laboratory Team: provides meteorological data from Central and South America.

6. Harbor Survey Assistance Program (HARSAP): a United States Naval oceanographic program which assists Western-Hemisphere countries to develop a hydrographic capability by conducting hydrographic surveys of harbors and waters. Data from these surveys are used to produce charts required to support Department of Defense and United States Merchant Marine operations. Additionally, under HARSAP, a new automated hydrographic survey collection and processing system is used to supplement in-country HARSAP survey efforts. This new system, the Hydrographic Survey and Charting System (HYSURCH), consists of a computer processing van, two boats, one officer, six enlisted personnel, six civilian engineers and technicians, and trainees from the host country.

7. Foreign Broadcast Information Service: monitors and translates into English reports appearing in the foreign public media.

#### C. Inter-American Geodetic Survey (IAGS)

IAGS is a regional activity, with headquarters for Latin American operations located in Panama. It is the nucleus for topographical activities conducted by the various Latin American nations. An IAGS cartography school is also conducted for Latin American students.

#### D. Humanitarian Relief Operations, Including Search and Rescue

United States military forces in Panama provide humanitarian relief to other Latin American countries in the event of natural disasters and to conduct searches for missing vessels in the waters of various Latin American nations.

#### E. Schooling for Latin American Military Personnel

1. Inter-American Naval Telecommunications Network Training Facility: conducts a formal course of instruction for operators and technicians of

IANTN membership. This facility is supported by the IANTN communication assistance team, whose members are all bilingual.

2. The United States Army School of the Americas (USARSA): provides professional military training in Spanish for the armed forces of 17 Latin American states, accomplished through courses based on United States Army doctrine ranging from the Command and General Staff College Course, Advanced and Basic Officer Courses, and the Cadet Senior-year Course, to the Non-Commissioned Officer Leadership Course. In addition to this emphasis on professional training, the School of the Americas provides specialized training in resources management at the national level, small unit tactics, and technical skills. This latter type of skill training is responsive to particular needs of Latin American states.

3. Inter-American Air Force Academy (IAFFA): provides professional education in Spanish for officers

and technical training in aeronautical specialties for airmen of all the Latin American Republics.

Technical training in Spanish is provided from the unskilled level through the full spectrum of proficiency to the supervisory level, including transition training in new weapons systems. Approximately five percent of the Academy's 100-member instructor corps is composed of guest instructors who assist United States Air Force officers and airmen in conducting the courses. Specialized transition training is offered in the A/T-37, C-130, and UH-1H.

4. Small Craft Instruction and Technical Team (SCIATT): provides to the navies of Central America training in the operation and maintenance of small size boats.

DONE at Washington, this 7th day of September, 1977, in duplicate, in the English and Spanish languages, both texts being equally authentic.

FOR THE UNITED STATES OF AMERICA:

ELLSWORTH BUNKER  
SOL M. LINOWITZ

FOR THE REPUBLIC OF PANAMA:

RÓMULO ESCOBAR BETHANCOURT  
ARISTIDES ROYO

### **Agreement Pursuant to Article VI of the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere**

The Governments of the United States of America and the Republic of Panama,

Recalling that both are parties to the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere of October 12, 1940;

Desiring to promote and advance the purposes of that Convention;

Noting that Article VI of the Convention provides that the Parties may, when circumstances warrant, enter into agreements with one another in order to increase the effectiveness of their collaboration to this end;

Aware of the unique importance to the international scientific community of the biological reserve located at Barro Colorado Island in Gatun Lake in the Republic of Panama; and

Considering that the Panama Canal Treaty and related agreements signed this date between them

make desirable a further agreement between them to ensure preservation of this biological reserve;

Have agreed upon the following:

#### ARTICLE I

1. The area known as Barro Colorado Island in Gatun Lake in the Republic of Panama is declared to be a Nature Monument as defined in Article I of the Convention, to be known as the Barro Colorado Nature Monument. Upon the termination of the Panama Canal Treaty signed this date, this Nature Monument shall also include the adjacent areas known as Orchid and Point Salud Islands; Bohio, Buena Vista, and Frijoles Points; and the smaller islets adjacent to them. The aforementioned adjacent areas shall be made available during the life of the Panama Canal Treaty for the purposes of this Agreement, through the issuance of land use licenses, as provided for in Article IV of the Agreement in Implementation of Article III of the Panama Canal Treaty. The Republic of Panama shall issue an

appropriate land use license or make other arrangements to afford similar use of the peninsula immediately south of Maiz Island, which, upon termination of the Panama Canal Treaty, shall also become a part of the aforementioned Nature Monument.

2. As used hereafter in this Agreement, the term "Nature Monument" shall refer to the Nature Monument defined in paragraph 1 of this Article.

#### ARTICLE II

The Governments pledge themselves to seek, in accordance with their respective national legislative processes, such legislation by each of them as may be necessary to ensure the preservation and protection of the Nature Monument as envisioned in the Convention and to take no action which would derogate in any way from its protected status, except as hereinafter provided.

#### ARTICLE III

The Governments agree to collaborate in use of the Nature Monument for the purposes of scientific research and investigation, and to assist each other's scientists and scientific institutions in carrying out such activities in the Nature Monument. The Governments shall agree from time to time on such arrangements as may be mutually convenient and desirable to facilitate such collaboration.

#### ARTICLE IV

The Governments agree that, consistent with the purposes of Article VI of the Convention, they shall make available to all the American Republics equally through publication or otherwise the scientific knowledge resulting from their cooperative efforts to establish and maintain the Nature Monument.

FOR THE UNITED STATES OF AMERICA:

ELLSWORTH BUNKER

SOL M. LINOWITZ

#### ARTICLE V

The Governments, mindful of their mutual interest in the efficient operation of the Panama Canal, agree that, in executing their responsibilities under the Panama Canal Treaty, they shall take account of this Agreement. It is understood that use of areas included in the Nature Monument for the purpose of maintaining existing facilities relating to the operation of the Panama Canal shall not be considered to derogate from the protected status of the Nature Monument. In the event either Government at any time considers that the efficient operation of the Panama Canal necessitates any other action materially affecting any part of the Nature Monument, the Governments agree to consult promptly and to agree to measures necessary for the protection of the overall integrity of the Nature Monument and furtherance of the purpose of this Agreement.

#### ARTICLE VI

The Governments agree that they shall jointly transmit copies of this Agreement to the Inter-American Economic and Social Council of the Organization of American States, and shall request that the Organization notify the Contracting Parties to the Convention of this Agreement.

#### ARTICLE VII

This Agreement shall enter into force simultaneously with the entry into force of the Panama Canal Treaty, and shall remain in force for ten years and, thereafter, for as long as both Governments are parties to the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere.

DONE at Washington, this 7th day of September, 1977, in duplicate, in the English and Spanish languages, both texts being equally authentic.

FOR THE REPUBLIC OF PANAMA:

RÓMULO ESCOBAR BETHANCOURT

ARISTIDES ROYO

## Note Regarding Economic and Military Cooperation

DEPARTMENT OF STATE  
WASHINGTON

EXCELLENCY:

I have the honor to refer to our recent discussions concerning programs designed to enhance cooperation between the United States of America and the Republic of Panama in the economic and military spheres. As a result of these discussions, I am authorized to inform you that my government is prepared to agree, within the limitations of applicable United States legislation and subject to compliance with applicable legal requirements and, where necessary, to the availability of appropriate funds, that:

The United States Government will consider applications from the Republic of Panama for housing investment guarantees with a view to approval of specific projects with an aggregate value of not to exceed \$75 million over a five year period. Approval of specific projects shall be subject to conformance with any applicable administrative and legislative criteria.

The Overseas Private Investment Corporation would guarantee borrowings of not to exceed \$20 million in United States private capital by the National Finance Corporation of Panama (COFINA) for use in financing productive projects in the private sector in Panama, subject to terms and conditions as shall be agreed upon by the Overseas Private Investment Corporation and COFINA, and

approved by the Overseas Private Investment Corporation's Board of Directors.

The Export-Import Bank of the United States is prepared to offer a letter of intent to provide loans, loan guarantees, and insurance, aggregating not to exceed \$200 million over a five year period beginning October 1, 1977 and ending September 30, 1982, for the purpose of financing the U.S. export value of sales to Panama. Such financing shall, at the discretion of the Board of Directors of the Export-Import Bank, be in the form of loans, loan guarantees, or insurance for individual products or projects approved by such Board.

The United States Government will issue repayment guarantees under its foreign military sales program in order to facilitate the extension of loans to the Government of Panama by eligible lenders for the purpose of financing the purchase by the Government of Panama of defense articles and defense services. The aggregate principal amount of loans guaranteed by the United States Government in accordance with this paragraph shall not exceed \$50 million over a ten year period.

It is understood that the undertakings of the United States provided for herein will enter into force upon an exchange of Notes to that effect between our two governments.

Accept Excellency, the renewed assurance of my highest consideration.

CYRUS VANCE

His Excellency

GABRIEL LEWIS GALINDO,  
*Ambassador of Panama.*

## Exchange of Notes Relating to Air Traffic Control Services

DEPARTMENT OF STATE  
WASHINGTON

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to refer to the Panama Canal Treaty signed this date by representatives of the United States of America and the Republic of Panama. In that connection, my Government proposes that negotiations relating to continued air traffic control services commence as soon as possible and that a definitive arrangement on this subject be concluded prior to the exchange of instruments of ratification of the Panama Canal Treaty.

If the foregoing proposal is acceptable to the Government of Panama, I shall be grateful to have an affirmative response from Your Excellency.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:

ELLSWORTH BUNKER  
Ellsworth Bunker  
*Ambassador at Large*

His Excellency

RÓMULO ESCOBAR BETHANCOURT,  
*Chief Negotiator.*

*Translation*

EMBASSY OF PANAMA  
WASHINGTON, D.C. 20008

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to refer to your note of today's date concerning continued air traffic control services, and to confirm that my Government agrees to commence negotiations as soon as possible and to conclude a definitive arrangement on this subject prior to the exchange of instruments of ratification of the Panama Canal Treaty.

Accept, Excellency, the renewed assurances of my highest consideration.

RÓMULO ESCOBAR B.

Rómulo Escobar Bethancourt  
*Chief Negotiator*

His Excellency

ELLSWORTH BUNKER,  
*Ambassador at Large*  
*of the United States of America.*

## Note Regarding the Establishment of the Panama Bureau of the United States Foreign Broadcast Information Service

The Department of State of the United States of America has the honor to inform the Foreign Ministry of the Republic of Panama that, upon the entry into force of the Panama Canal Treaty, it is the intention of the United States of America to establish the Panama Bureau of the United States Foreign Broadcast Information Service (FBIS) as an integral part of the Embassy of the United States of America in the Republic of Panama. The Bureau would form part of the diplomatic mission, in a manner similar to that of other agencies of the United States Govern-

ment currently operating in the Republic of Panama, under the authority of the United States Ambassador.

The Foreign Broadcast Information Service is an agency of the United States Government with worldwide responsibility for monitoring and translating into English available foreign public media, including (a) transmissions by major press agencies, (b) public radio and television broadcasts, and (c) selected articles from newspapers and other publications. These translated materials are made available in the United States of America and abroad to interested persons in both governmental and private sectors. FBIS executes this responsibility from fourteen bureaus located in foreign countries, most of which are established as integral parts of the United States diplomatic missions to those countries.

The Panama Bureau of FBIS will have responsibility for providing this service for an area which includes most countries of Central America and northern South America, and a part of the African continent. The Bureau Staff currently consists of four United States citizen employees (a Bureau Chief, a Deputy Chief and two editors) assigned for rotational tours of two to four years. There are no locally-hired American employees. United States citizen personnel of the Bureau shall have the same privileges and immunities, and be subject to the same conditions, as other American personnel currently assigned to the various agencies forming parts of the Embassy of the United States of America in the

Republic of Panama. The Bureau also currently employs three locally-hired third country nationals resident in Panama, and twenty-nine Panamanian citizens. FBIS anticipates no perceptible expansion of its American or local staff in the foreseeable future.

At the present time, the Panama Bureau of FBIS is located on a single parcel of land, comprising some 320 acres and including the Bureau office and the Chiva Chiva radio antenna field, located on the Fort Clayton Military Reservation.

EB

DEPARTMENT OF STATE,  
WASHINGTON, *September 7, 1977.*

### **Exchange of Notes Relating to the Gorgas Memorial Institute of Tropical and Preventive Medicine, Incorporated, and to the Gorgas Memorial Laboratory**

DEPARTMENT OF STATE  
WASHINGTON

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to refer to the Gorgas Memorial Institute of Tropical and Preventive Medicine, Incorporated, and its subsidiary, the Gorgas Memorial Laboratory. The Institute and Laboratory were established in memory of Dr. William C. Gorgas for research on diseases endemic to Central America and northern South America. The Institute receives from the Government of the United States an annual contribution in Dr. Gorgas' memory for the operation and maintenance of the Laboratory.

The Gorgas Memorial Laboratory is established and operates in Panama under provisions of Law 15 of October 16, 1930, Law 5 of February 5, 1953 and Law 84 of September 20, 1973 of the Republic of Panama. The Institute has informed the United States of its desire to continue its operations in Panama pursuant to the provisions of these laws.

I refer further to the Panama Canal Treaty and related agreements signed this date by representatives of the Governments of the United States and

Panama, and, in that connection, propose that our Governments agree that, subsequent to the entry into force of the Treaty, the Gorgas Memorial Institute and Laboratory shall continue to enjoy the sole and exclusive use, without charge, of the following areas of lands and waters, and installations, being used by the Institute and Laboratory prior to the entry into force of the Treaty:

Juan Mina Plantation, approximately 15 acres of land, and one multi-purpose building situated thereon, located on the east side of the Chagres River in the Balboa East District; and Building 265, a laboratory building adjacent to the Gorgas Hospital, Ancon, and adjacent land.

It is understood that this arrangement shall continue for an initial period of five years, and will be renewed upon request at least one year in advance by the Gorgas Memorial Institute.

I propose further that in the event the Republic of Panama establishes any means whereby any legal or natural person other than the Government of the Republic of Panama may acquire title under the laws of the Republic of Panama to any areas of lands and waters, or other real property located thereon, which prior to the entry into force of the Panama Canal Treaty formed part of the Canal Zone, our Governments agree that the Gorgas Memorial Institute shall be permitted by the Republic of Panama to acquire title to the above-mentioned areas the use of which it enjoys. Such title shall be accorded by the

Republic of Panama pursuant to an arrangement not less favorable than that accorded by the Republic of Panama to any other such legal or natural person.

I propose further that our Governments agree to the issuance of a license to the Gorgas Memorial Institute in accordance with the procedures set forth in Article IV of the Agreement in Implementation of Article III of the Panama Canal Treaty to permit the use, without charge, by the Gorgas Memorial Laboratory of Abogado and Aojeta Islands, located in Gatun Lake, for the purposes of the Laboratory.

I further propose that our Governments agree that the United States may permit the Gorgas Memorial Institute and Laboratory to enjoy the privilege of making official purchases for the Laboratory's operations in the United States military commissaries and exchanges established pursuant to the Agreement in Implementation of Article IV of the Panama Canal Treaty, and that the United States may provide to the Institute and Laboratory for official purposes such other supplies or services of the United States Forces or the Panama Canal Commission as may be convenient. It is understood that this agreement will not extend to personal purchases by individual members of the staff and employees of the Gorgas Memorial Laboratory, regardless of their nationality.

If the foregoing proposals relating to the status and operations of the Gorgas Memorial Institute and Laboratory are acceptable to the Government of the Republic of Panama, I have the honor to propose that this note, and Your Excellency's affirmative response, shall constitute an agreement between our Governments concerning this matter, which will enter into force on the date of entry into force of the Panama Canal Treaty.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:

ELLSWORTH BUNKER  
Ellsworth Bunker  
*Ambassador at Large*

His Excellency

RÓMULO ESCOBAR BETHANCOURT,  
*Chief Negotiator.*

*Translation*

EMBASSY OF PANAMA  
WASHINGTON, D.C. 20008

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to acknowledge receipt of Your Excellency's note of today's date, which reads as follows:

[There follows Ambassador Bunker's note, quoted in English.]

I have the honor to confirm that my Government accepts the foregoing proposals, and that Your Excellency's note and this note shall constitute an agreement between our two Governments which will enter into force on the date of the entry into force of the Panama Canal Treaty.

Accept, Excellency, the renewed assurances of my highest consideration.

RÓMULO ESCOBAR B.  
Rómulo Escobar Bethancourt  
*Chief Negotiator*

His Excellency

ELLSWORTH BUNKER,  
*Ambassador at Large*  
*of the United States of America.*



**Exchange of Notes Relating to Scientific Activities in Panama of the Smithsonian Tropical Research Institute**

DEPARTMENT OF STATE  
WASHINGTON

SEPTEMBER 7, 1977

EXCELLENCY:

As you are aware, the Smithsonian Tropical Research Institute, a trust instrumentality of the United States of America, hereinafter called "the Institute," has, for several years, carried out experimental and research activities of an exclusively scientific nature in various parts of the Republic of Panama. Those activities are described and authorized in Contract No. 1, January 5, 1977, signed by Dr. Abraham Saied, Minister of Health, and Dr. Ira Rubinoff, Director of the Institute. As set forth in the seventh clause of the contract, its duration is indefinite, but it may be terminated if one of the parties so desires, provided that it notify the other one year in advance of the date selected for termination.

Despite the foregoing, it is obvious that the Institute's legal situation and the development of its activities will be affected by the entry into force of the Panama Canal Treaty and related agreements, signed September 7, 1977 by representatives of the Republic of Panama and the United States of America. In anticipation of that eventuality, I thought it pertinent to propose to you, in compliance with precise instructions from my Government, that the Republic of Panama and the United States of America agree on the Institute's continuation of its scientific activities in the Republic of Panama, after entry into force of the Panama Canal Treaty and related agreements, in accordance with the provisions of the above-mentioned contract and in order to achieve the objectives therein set forth.

The agreement which I present to you for consideration would remain in effect for five years from the date of the entry into force of the Panama Canal Treaty and would be extended automatically for 5 year periods until either Government gave notice of termination, at least one year before the date of automatic extension.

I consider it advisable to propose to Your Excellency that if one of the parties to the contract should wish to terminate it on the basis of the seventh

clause thereof while the Panama Canal Treaty is in force, our Governments agree that, unless there is a mutual understanding to replace the contract, the contract and the agreement proposed in this note shall remain in force.

It could also be agreed, and I so propose to Your Excellency, that, if either party wishes to terminate the aforementioned contract after the expiration of the Panama Canal Treaty, our Governments shall immediately initiate consultations concerning the future legal situation of the Institute and its facilities, properties, and personnel in the Republic of Panama, before the contract expires.

With respect to facilities and land and water areas in various parts of the Isthmus of Panama listed and described in the annex to this note, the use of which has not been granted by the Republic of Panama to the United States of America by any other means, I propose that they be made available to the Institute for its exclusive use. It is understood that this agreement will not affect the right of the parties to the contract to enter into subsequent agreements on the terms of the Institute's utilization of other facilities and land and water areas in the Republic of Panama which the latter may consider it desirable to make available to the Institute for the uses and purposes defined in the contract.

I wish to propose that our Governments agree that, as long as the Panama Canal Treaty remains in force, the United States of America may permit the Institute to use any portion of the lands and waters, and of the facilities located therein, situated within the land and water areas the use of which is granted by the Treaty to the United States of America, for purposes of the aforementioned contract, subject to terms and conditions consistent with the Panama Canal Treaty, as the United States of America may define them.

I further wish to propose to Your Excellency that upon cessation, under the Panama Canal Treaty, of the right of the United States to use any land and water areas and facilities located therein which are being used by the Institute, our Governments immediately begin talks intended to reach agreements permitting the Institute to continue to use such areas or facilities.

The possibility should be considered, Your Excellency, that the Republic of Panama may establish procedures whereby any natural or legal person could acquire, in accordance with the laws of Panama, title to land and water areas or properties located

therein which were formerly a part of the territory constituting the Panama Canal Zone. I therefore propose to you that, such being the case, our Governments agree that the Republic of Panama, subject to the applicable laws, shall grant the Institute rights, other than real property title, with respect to any land and water areas or properties in use by the Institute at the time when such procedures are established. These rights will be granted by the Republic of Panama by an agreement or other means not less favorable than the most favorable granted by the Republic of Panama to any other natural or juristic person.

Finally, Your Excellency, I should like to propose that in the event that the Republic of Panama does not establish such procedures for transfer of title to land and water areas or properties located therein to natural or legal persons other than the Government of the Republic of Panama, the two Governments agree that the Government of the Republic of Panama shall place at the disposal of the Institute, free of cost, the use of all areas and facilities referred to in this letter, and any others that may be used by the Institute for the purposes defined in the aforementioned contract.

An exception will be made for cases in which the two Governments or the parties to the aforementioned contract might reach a mutual agreement on other terms.

If the aforementioned proposals relating to the operation in the Republic of Panama of the Smithsonian Tropical Research Institute are acceptable to your Government, I should like to propose that this note and Your Excellency's affirmative reply constitute an agreement between our Governments concerning this matter.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:

ELLSWORTH BUNKER

Ellsworth Bunker

*Ambassador at Large*

His Excellency

RÓMULO ESCOBAR BETHANCOURT,

*Chief Negotiator.*

ANNEX

The following facilities and lands and waters shall be made available for the continued exclusive use of the Smithsonian Tropical Research Institute.

1. Smithsonian Tropical Research Institute Headquarters, shops, administrative offices, cages and laboratories on Gorgas Road.

2. Tivoli Site. Comprises approximately 4.8 acres at the site of the former Tivoli Hotel and adjacent Tivoli Kitchen structure.

3. Naos Island. All facilities and areas being used by the Smithsonian Tropical Research Institute on the date the Panama Canal Treaty enters into force.

4. Flamenco Island. All facilities and areas being used by the Smithsonian Tropical Research Institute on the date the Panama Canal Treaty enters into force.

5. Pipeline Road Reserve. Approximately 37 acres of land near Pipeline Road at coordinates PA 391116 (Sheet 4243 II, Gamboa).

*Translation*

EMBASSY OF PANAMA  
WASHINGTON, D. C. 20008

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to refer to Your Excellency's note of today's date concerning the activities of the Smithsonian Tropical Research Institute in the Republic of Panama, which reads as follows:

[There follows Ambassador Bunker's note, quoted in English.]

I have the honor to confirm the acceptance by my Government of the proposals contained in this note and its agreement that your note and this reply shall constitute an agreement between our two Governments.

Accept, Excellency, the renewed assurances of my highest consideration.

RÓMULO ESCOBAR B.

Rómulo Escobar Bethancourt

*Chief Negotiator*

His Excellency

ELLSWORTH BUNKER

*Ambassador at Large*

*of the United States of America.*

**Exchange of Notes Relating to Custodianship of  
the Barro Colorado Native Monument by the  
Smithsonian Tropical Research Institute**

DEPARTMENT OF STATE  
WASHINGTON

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to refer to the Agreement pursuant to Article VI of the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, and to the Panama Canal Treaty and related agreements signed on September 7, 1977 by representatives of the United States of America and the Republic of Panama. Article III of the Agreement relating to the Convention on Nature Protection provides that our Governments may agree from time to time on such arrangements as may be mutually convenient and desirable to facilitate their collaboration in the use of the Barro Colorado Nature Monument for the purposes of scientific research and investigation.

I consider it desirable within the spirit of the aforementioned Convention and for the purposes of the Agreement based thereon that our Governments agree that the Smithsonian Tropical Research Institute (STRI), a trust instrumentality of the United States of America, which I shall hereinafter call the Institute, be designated by both Governments as custodian of the Barro Colorado Nature Monument. I propose that our Governments further agree that the Institute shall, during the period of its custodianship, have sole responsibility to act on behalf of our Governments in authorizing use of the Nature Monument for the purposes of scientific research and investigation and for its protection as envisaged in the aforementioned Convention and our Agreement based thereon. In the event that one of the Parties should attempt to take any action related to the efficient operation of the Panama Canal as provided for in Article V of our Agreement, I propose that the Institute, as custodian, be advised in advance and invited to comment on the potential impact of such action on the overall integrity of the Nature Monument.

I consider it desirable and to that end I propose to Your Excellency that, during the period of its

custodianship, the Institute be authorized to employ scientific and support staff, to include game wardens, as necessary to enforce such laws and regulations as may apply to the protection of the Nature Monument. Persons violating the integrity of the Nature Monument contrary to the provisions of such laws or regulations shall be promptly delivered to the authorities of the Republic of Panama by game wardens employed by the Institute for appropriate action under the laws of the Republic of Panama.

I further consider it desirable and I therefore propose to Your Excellency that our Governments agree to designate the Institute as custodian for the Barro Colorado Nature Monument for an initial period of five years, to be extended for additional 5-year periods upon request by the Institute at least one year in advance of the date of expiration of the period, or until such time as our Governments may mutually agree on other understandings for the administration of the Nature Monument. If, subsequent to the termination of the Panama Canal Treaty, the Republic of Panama should desire to terminate the custodianship of the Institute of the Nature Monument, I consider it desirable and I therefore propose that our Governments agree that the decision take effect one year after the day on which the Republic of Panama shall inform the United States of this intent.

If the foregoing understandings proposed for custodianship of the Barro Colorado Nature Monument by STRI are acceptable to the Government of the Republic of Panama, I propose that this note and Your Excellency's affirmative response constitute an agreement between our Governments concerning this matter.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:

ELLSWORTH BUNKER

Ellsworth Bunker

*Ambassador at Large*

His Excellency

RÓMULO ESCOBAR BETHANCOURT,

*Chief Negotiator.*

*Translation*

EMBASSY OF PANAMA  
WASHINGTON, D.C. 20008

SEPTEMBER 7, 1977

EXCELLENCY:

I have the honor to refer to Your Excellency's note of today's date concerning the designation of the Smithsonian Tropical Research Institute as custodian of the Barro Colorado Nature Monument, which reads as follows:

[There follows Ambassador Bunker's note, quoted in English.]

I have the honor to confirm that my Government accepts the understanding set forth in Your Excellency's note, and that your note and this note in reply shall constitute an agreement between our two Governments.

Accept, Excellency, the renewed assurances of my highest consideration.

RÓMULO ESCOBAR B.

Rómulo Escobar Bethancourt  
*Chief Negotiator*

His Excellency

ELLSWORTH BUNKER

*Ambassador at Large*

*of the United States of America.*

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MIGRATORY GAME BIRDS - General  
Distribution

Black Bellied Tree Duck	B + W
Fulvous Tree Duck	W
Pintail	W
Am. Green Winged Teal	W
Blue Winged Teal	W
Cinnamon Teal	W
Am. Wigeon	W
Northern Shoveler	W
Lesser Scaup	W
Masked Duck	B + W
Sora	W
Common Gallinule	B + W
Purple Gallinule	B + W
American Coot	W
Common Snipe	W
Mourning Dove	W

B - Breeding

W - Wintering





Species Included in Proposed Panamanian  
Law for Protection of Wildlife and Habitat

The Following species are included in a proposed law in the Republic of Panama regarding the protection and conservation of wildlife and habitat. Those marked with an asterisk are already protected by U.S. Public law 93-205, which obliges any person under U.S. jurisdiction, or any agency, department or instrumentality of the U.S. Government to afford them and their habitat a certain amount of protection. Those marked with a "1" occur on the pipeline road area.

COMMON NAME	SCIENTIFIC NAME	NOMBRE COMUN
White-tailed deer ✓	<i>Odocoileus virginianus</i>	Venado Cola Blanca <sup>1</sup>
Red brocket ✓	<i>Mazama americana</i>	Venado Corzo <sup>1</sup>
Brown brocket	<i>Mazama gouazoubira</i>	Venado Corzo Chocolate
Tapir ✓	<i>Tapirus bairdii</i>	Macho de monte <sup>1*</sup>
Paca	<i>Cuniculus paca</i>	Conejo pintado <sup>1</sup>
Greater Tinamou ✓	<i>Tinamus major</i>	Perdiz de arca <sup>1</sup>
Lesser tinamou	<i>Crypturellus soui</i>	Perdiz de Rastrojo <sup>1</sup>
Great Curassow ✓	<i>Crax rubra</i>	Pavon <sup>1</sup>
Crested guan ✓	<i>Penelope purpurascens</i>	Pava cimba <sup>1</sup>
Black guan	<i>Chamapaetes unicolor</i>	Pava negra
Whistling duck	<i>Dendrocygna autumnalis</i>	Guichichi
Muscovy duck	<i>Cairina moschata</i>	Pato real
Quetzal	<i>Pharomachrus mocinno</i>	Quetzal*
Harpy eagle ✓	<i>Harpia harpyja</i>	Aguila arpia <sup>1*</sup>
Manatee ✓	<i>Trichechus manatus</i>	Manati <sup>1*</sup>
Green turtle	<i>Chelonia midas</i>	Tortuga verde*
Golden frog	<i>Atelopus zeteki</i>	Rana dorada*
turtle	<i>Caretta caretta</i>	Tortuga cahusma
Ridley's turtle	<i>Lepidochelys olivacea</i>	Tortuga mulato*
Costa Rican puma	<i>Felis concolor</i>	Leon <sup>1*</sup>
Jaguar	<i>Panthera onca</i>	Tigre <sup>1*</sup>
Ocelot	<i>Felis pardalis</i>	Manigordo <sup>1*</sup>
Margay	<i>Felis wiedii</i>	Tigrillo <sup>1*</sup>
Jaguarundi	<i>Felis jaguarundi</i>	Tigrillo congo <sup>1*</sup>
Capibara	<i>Hydrochaeris hydrochaeris</i>	Conejo poncho <sup>1</sup>
Bush dog	<i>Speotios venaticus</i>	Perro de Monte
Yellow crocodile	<i>Crocodylus acutus</i>	Caiman aguja <sup>1*</sup>
Night monkey	<i>Aotus trivirgatus</i>	Jujuna <sup>1</sup>
Black spider monkey	<i>Ateles fusiceps</i>	Jerre
Azucero night monkey	<i>Aotus bipunctatus</i>	Mono nocturno
Geoffroy's tamarin	<i>Saguinus geoffroyi</i>	Mono titi <sup>1</sup>
Red spider monkey	<i>Ateles geoffroyi</i>	Mono colorado
Tortoise	<i>Geochelone carbonaria</i>	Tortuga terrestre <sup>1</sup>
Highland tinamou	<i>Notocercus bonapartei</i>	Perdiz serrana
Howler monkey	<i>Alouatta villosa</i>	Mono aullado <sup>1*</sup>
Blue & Gold macaw	<i>Ara arayauna</i>	Guacamaya Azul y amari
Great green macaw	<i>Ara ambigua</i>	Guacamaya verde
Scarlet macaw	<i>Ara macao</i>	Guacamaya bandora
Red & green macaw	<i>Ara chloroptera</i>	Guacamaya roja
Agouti	<i>Dasyprocta punctata</i>	Meque <sup>1</sup>
Hawksbill turtle	<i>Eretmochelys imbricata</i>	Tortuga caray
Yellow headed parrot	<i>Amazona ochrocephala</i>	Loro de boca amarilla <sup>1</sup>



Animals listed in the Endangered Species Act, 1973, known to occur in the Canal Zone, are:

MAMMALS

Mantled Howler Monkey	<u>Alouatta palliata villosa</u>
Red-backed Squirrel Monkey	<u>Saimiri oerstedii</u>
Red Spider Monkey	<u>Ateles geoffroyi</u>
Costa Rican Puma	<u>Felis concolor costaricensis</u>
Jaguar	<u>Panthera onca</u>
Ocelot	<u>Felis pardalis</u>
Margay	<u>Felis wiedii</u>
Jaguarundi	<u>Felis jagouarundi panamensis</u>
West Indian Manatee	<u>Trichechus manatus</u>
Central American Tapir	<u>Tapiris bairdii</u>

BIRDS

Brown Pelican	<u>Pelecanus occidentalis</u>
Florida Everglade Kite	<u>Rostrhamus sociabilis plumbeus</u>
Harpy Eagle	<u>Harpia harpyja</u>
American Peregrine Falcon	<u>Falco peregrinus anatum</u>
California Least Tern	<u>Sterna albifrons browni</u>

REPTILES

American Crocodile	<u>Crocodylus acutus</u>
Brown Caiman	<u>Caiman crocodilus fuscus</u>

In addition to all of the above species, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973, includes the following animals known to occur in the Canal Zone:

MAMMALS

Two-toed Sloth	<u>Choloepus hoffmanni</u>
Naked-tailed Armadillo	<u>Cabassous centralis</u>
Olingo	<u>Bassaricyon gabbii</u>
Grison	<u>Galictis allamandi</u>
Long-tailed Otter	<u>Lutra annectens</u>

BIRDS

Great Curassow	<u>Crax rubra</u>
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The Marine Mammal Protection Act, 1972, lists several species of whales and sea turtles from Panama seas and the West Indian Manatee, Trichechus manatus, known to occur in Gatun Lake, Canal Zone.

List prepared from data compiled by:  
Panama Audubon Society (NBG/1977)

Great Tinamou	White-necked Puffbird	Olive-striped Flycatcher
Little Tinamou	Black-breasted Puffbird	Ochre-bellied Flycatcher
Chestnut-bellied Heron	Pied Puffbird	Gray-breasted Martin
King Vulture	White-whiskered Puffbird	White-thighed Swallow
Gray-headed Kite	Collared Aracari	Plain Wren
Hook-billed Kite	Keel-billed Toucan	Bay Wren
Double-toothed Kite	Chestnut-mandibled Toucan	Black-bellied Wren
Plumbeous Kite	Yellow-eared Toucanot	Rufous-breasted Wren
Tiny Hawk	Cinnamon Woodpecker	White-breasted Wood-Wren
Short-tailed Hawk	Lineated Woodpecker	Song Wren
Gray Hawk	Red-crowned Woodpecker	Nightingale Wren
White Hawk	Black-checked Woodpecker	Clay-colored Robin
Semiplumbeous Hawk	Crimson-crested Woodpecker	Tropical Gnatcatcher
Plumbeous Hawk	Crimson-bellied Woodpecker	Long-billed Gnatwren
Ornate Hawk-Eagle	Plain-brown Woodcreeper	Tawny-faced Gnatwren
Black Hawk-Eagle	Ruddy Woodcreeper	Green Shrike-Vireo
Collared Forest-Falcon	Long-tailed Woodcreeper	Yellow-green Vireo
Slaty-backed Forest-Falcon	Wedge-billed Woodcreeper	Lesser Greenlet
Barred Forest-Falcon	Barred Woodcreeper	Bananaquit
Red-throated Caracara	Buff-throated Woodcreeper	Shining Honeycreeper
Great Curassow	Black-striped Woodcreeper	Red-legged Honeycreeper
Crested Guan	Buff-throated Foliage-gleaner	Green Honeycreeper
Gray-headed Chachalaca	Plain Xenops	Blue Dacnis
Marbled Wood-Quail	Tawny-throated Leaf-tosser	Scarlet-thighed Dacnis
Tawny-faced Quail	Scaly-throated Leaf-tosser	Chestnut-capped Warbler
Gray-necked Wood-Rail	Fasciated Antshrike	Buff-rumped Warbler
White-throated Crike	Great Antshrike	Chestnut-headed Oropendola
Sunbittern	Barred Antshrike	Yellow-rumped Cacique
Pale-vented Pigeon	Slaty Antshrike	Scarlet-rumped Cacique
Scaled Pigeon	Russet Antshrike	Yellow-tailed Oriole
Short-billed Pigeon	Spot-crowned Antvireo	Yellow-backed Oriole
Ruddy Ground-Dove	Pygmy Antwren	White-vented Euphonia
Blue Ground-Dove	Streaked Antwren	Yellow-crowned Euphonia
White-tipped Dove	Checker-throated Antwren	Fulvous-vented Euphonia
Gray-chested Dove	White-flanked Antwren	Thick-billed Euphonia
Olive-backed Quail-Dove	Dot-winged Antwren	Golden-hooded Tanager
Violaceous Quail-Dove	Dusky Antbird	Plain-colored Tanager
Ruddy Quail-Dove	White-bellied Antbird	Bay-headed Tanager
Orange-chinned Parakeet	Chestnut-backed Antbird	Blue-gray Tanager
Brown-hooded Parrot	Dull-mantled Antbird	Palm Tanager
Blue-headed Parrot	Bicolored Antbird	Crimson-backed Tanager
Red-lore Amazon	Spotted Antbird	Yellow-rumped Tanager
Nealy Amazon	Ocellated Antbird	Carmioli's Tanager
Squirrel Cuckoo	Wing-banded Antbird	Red-throated Ant-Tanager
Greater Ani	Black-faced Antthrush	White-shouldered Tanager
Smooth-billed Ani	Black-crowned Antpitta	Tawny-crested Tanager
Pheasant Cuckoo	Streak-chested Antpitta	Sulphur-rumped Tanager
Rufous-vented Ground-Cuckoo	Blue-crowned Manakin	Gray-headed Tanager
Crested Owl	Red-capped Manakin	Dusky-faced Tanager
Vermiculated Screech Owl	Golden-collared Manakin	Buff-throated Saltator
Spectacled Owl	Thrushlike Manakin	Streaked Saltator
Mottled Owl	Broad-billed Manakin	Slate-colored Grosbeak
Black-and-White Owl	Blue Cotinga	Blue-black Grosbeak
Oilbird	Bright-rumped Attila	Blue-black Grassquit
Great Potoo	Speckled Mourner	Variable Seedeater
Common Potoo	Rufous Mourner	Thick-billed Seed-Finch
Short-tailed Nighthawk	Rufous Piha	Orange-billed Sparrow
Pauraque	Cinnamon Becard	Black-striped Sparrow
White-collared Swift	White-winged Becard	
Band-rumped Swift	Masked Tityra	
Lesser Swallow-tailed Swift	Black-crowned Tityra	
Rufous-breasted Hermit	Purple-throated Fruitcrow	
Band-tailed Barbthroat	Sirystes	
Long-tailed Hermit	Long-tailed Tyrant	
Little Hermit	Tropical Kingbird	
White-necked Jacobin	Piratic Flycatcher	
Violet-headed Hummingbird	Streaked Flycatcher	
Rufous-crested Coquette	Boat-billed Flycatcher	
Crowned Woodnymph	White-ringed Flycatcher	
Violet-bellied Hummingbird	Social Flycatcher	
Blue-chested Hummingbird	Rusty-margined Flycatcher	
Snowy-breasted Hummingbird	Dusky-capped Flycatcher	
Rufous-tailed Hummingbird	Ruddy-tailed Flycatcher	
Purple-crowned Fairy	Sulphur-rumped Flycatcher	
Slaty-tailed Trogon	Black-tailed Flycatcher	
White-tailed Trogon	Northern Royal-Flycatcher	
Black-throated Trogon	Golden-crowned Spadebill	
Violaceous Trogon	Brownish Flycatcher	
Green-and-Rufous Kingfisher	Yellow-margined Flycatcher	
Pygmy Kingfisher	Olivaceous Flatbill	
Broad-billed Notmot	Southern Bentbill	
Rufous Notmot	Black-capped Pygmy-Tyrant	
Blue-crowned Notmot	Yellow-green Tyrannulet	
Great Jacamar	Yellow-bellied Elaenia	
	Forest Elaenia	
	Gray Elaenia	
	Paltry Tyrannulet	
	Yellow-crowned Tyrannulet	
	Brown-capped Tyrannulet	

Tentative list compiled from data by Ridgley, Karr, Willis, Gale and others. April 1977.

## CANAL COMPANY COMMERCIAL ACTIVITIES AND SERVICES

Supermarkets. The supermarkets sell food and related items of the type available in similar stores in the United States. There are currently two such stores in the Canal Zone, located in the terminal townsites of Balboa and Coco Solo. Small "superettes" are also located at Gatun, Paraiso, Gamboa, and Rainbow City. FY 1976 gross sales at all supermarket facilities were \$18.7 million.

Department Stores. Two department store complexes selling types of merchandise normally found in similar U. S. department stores are located at Balboa and Coco Solo. FY 1976 sales were \$9.3 million for these department store units.

Food Service Activities. The Canal Company operates three cafeterias at Balboa, Margarita and Balboa Heights, and a Drive-Inn on the Pacific side. These operations had total sales of \$2.3 million for FY 1976. Approximately 250 vending machines at numerous sites across the Isthmus account for an additional \$1.2 million in revenue. Eight small merchandise outlets provide convenience items for sale to job-site card holders. FY 1976 sales for these units totaled \$800 thousand. Food service activities include hot meal and box lunch service for other operating divisions, hot meal service for the Balboa and Cristobal jails, and student feeding at three U. S. secondary schools.

Miscellaneous Outlets. The Company also operates six gasoline stations located at La Boca, Paraiso, Gamboa, Coco Solo, Margarita, and Gatun. The stations at La Boca and Coco Solo offer a variety of automotive supplies and accessories and are equipped to perform lubrication and other minor maintenance services. There are also seven theaters located at Balboa, Paraiso, Gamboa, Coco Solo, Margarita, Rainbow City and Gatun, and two bowling centers, one 12-lane facility at Balboa and an 8-lane facility at Margarita. Total revenue from these recreational operations was \$420 thousand in FY 1976. Two retail optical outlets, located in Balboa and Cristobal, provide optical services for the Canal Zone. These outlets generated \$500 thousand in FY 1976. Retail ice sales totaled approximately \$100 thousand and the operation of an institutional laundry plant contributed revenue of \$296 thousand during FY 1976.

These operations, plus other miscellaneous revenues of \$475 thousand and wholesale sales to outside organizations of \$2.5 million, comprise the total revenue of \$39.3 million realized in FY 1976.

Manufacturing and Processing Units. Historically, a significant proportion of the food and merchandise sold in Company retail outlets was produced, manufactured, or processed in the Canal Zone. In the past, these items included meat and sausage products, dairy products, bread and pastries, coffee, and agricultural products. Most of the activities have been discontinued over the years as reliable substitutes at

reasonable prices became available from the Republic of Panama. Those units remaining, and the value of their products or services for FY 1976, are:

(1) Pastry and Cake Bakery (Mount Hope)	\$ 651,000
(2) Optical Processing Shop (Balboa)	371,000
(3) Pre-packaging Plant (Corozal)	479,000
(4) Milk and Ice Cream Plant (Mount Hope)	1,300,000

Concessionaire Services. In addition to the retail and production complex, the Supply Division of the Company also administers and oversees the operation of various small concessionaires, including barber and beauty shops, shoe repair shops, personal drycleaning and laundry pick-up service, and tailor and seamstress shops.

REPORT

THE IMPACT OF THE CANAL WIDENING PROGRAMME ON ARCHAEOLOGICAL  
RESOURCES (PREHISTORIC AND HISTORIC)

RICHARD G. COOKE

ABSTRACT

Pre-Colombian, Colonial and Recent archaeological deposits have been located in areas to be affected by the Canal widening programme (all in the Chagres river basin). The environmental impact of the programme on these resources has been briefly assessed. Though some sites have, and more will be destroyed by the programme, it is concluded that the existing damage to the materials (by earlier construction and dumping) in most cases outweighs the potential archaeological value of the affected sites. This is deemed to be particularly true in the case of Recent (Railroad and Construction Period) sites, where available documentary and photographic resources are a greater source of information than sub-aquatic or superficial archaeology (the only large site of importance which is not mostly submerged is Gorgona; here, the remaining materials would provide interested students with good information). Some "caveat" are offered about pre-Colombian sites, where lack of stone masonry often conceals valuable information. Suggestions have been made, in the body of the text and the epilogue, concerning the management of cultural resources in the vicinity of the Canal.



Contents

- Section A: Archaeological resources (pre-Colombian)
- A.1: Introduction
- A.2: Pre-Colombian sites in the vicinity of the Canal
- A.3: Pre-Colombian archaeological sites located during the cultural survey
- A: de Lesseps Island
  - B: the islands in Mamei curve
  - C: San Juan island
  - D: Gorgona island
  - E: Santa Cruz island
- A.4: Other pre-Colombian archaeological sites
- A.5: The environmental impact of the dredging programme on the pre-Colombian archaeological resources
- Section B: Archaeological resources (Colonial period)
- B.1: Introduction
- B.2: The environmental impact of the Canal widening programme on the Colonial archaeological resources
- Section C: Railroad and construction period sites
- C.1: Introduction
- C.2: Industrial and settlement sites
- C.3: Environmental impact on sites of the nineteenth and twentieth centuries
- C.4: Recent sites outside the Chagres drainage which will be affected by the Canal widening programme
- Section D: Epilogue

## A. Archaeological resources (Pre-Colombian)

### 1. Introduction

The Isthmus of Panama was inhabited by human groups at least as early as 11,000 years ago: projectile points and skin-working tools recovered from the shores of the Rio Chagres (Lake Madden) and from dredge spoil at the Pacific entrance of the Canal, are typologically very similar to examples from Patagonia, Ecuador and Guatemala, which have been dated by C.14 to between 11,000<sup>±</sup>170 and 10,710<sup>±</sup>170 B.C. Most of the extant information on subsequent populations comes from the drier, Pacific sector of the Isthmus. Briefly, the known archaeological sequence suggests that, until about 3,000 B.C., the human population was comprised of small bands of hunter-gatherers living seasonally in rock shelters and selected open-sites. About 3,000 B.C., changes in the stone tool inventory and the presence of carbonised remains of plant cultigens on living floors, suggests a gradual adoption of cultivated tree- and root-crops. In some littoral areas of the Pacific (the Gulf of Parita, for example), where protein resources were plentiful and available year-round, settlements were larger (up to ?100 persons) and, presumably, more permanent. At first, the utilisation of domesticates did not affect basic settlement patterns and overall population density; however, in western Chiriqui, agriculture based on seed-, as opposed to root-crops, was responsible for the establishment and rapid expansion of nucleated villages in high mountain valleys by at least 800 B.C. A similar pattern of settlement must have spread over the remainder of the Pacific watershed some time in the first millennium B.C.: densely populated villages in lowland, alluvial zones are well in evidence by 100 A.D., both east and west of Panamá City. Demographic

pressures, resulting from the increased productivity of seed ("maize-bean") agriculture and communal fishing in estuarine areas, seem to have been responsible for the establishment, along the Pacific coast, of micro-environmentally defined, mutually belligerent federations of villages, typical of Tropical forest 'rank societies' in general. These 'chiefdoms' were characterised by intense competition for resources within and without the territories, constant raiding and skirmishing and a flexible hierarchical system, based on temporary alliances, rather than rigid social stratification and hereditary dynasties. On the Atlantic side of the Isthmus, the wettest regions (such as Bocas del Toro), could probably never support settlement types more complex than the present-day Guaymi hamlet clusters. However, along some of the larger rivers of the central Caribbean coast (the Indio and the Chagres, for example), the existence of dense agricultural populations is suggested by incomplete data: in the upper Chagres, a seed- and root-crop subsistence is in evidence by at least  $70 \pm 155$  B.C.

## 2. Pre-Colombian sites in the vicinity of the Canal

No comprehensive professional survey of pre-Colombian archaeological sites has been made in the territory known as the Canal Zone. (Grave-diggers - or 'huaqueros' - residing within the Zone and without, are known to have investigated a number of funerary sites, the majority of undisclosed location.) As the settlement orientation of pre-Colombian groups was decidedly fluviatile, it is probably a truism to state that "any slightly elevated, flood-free location in close proximity to a water-course, will provide evidence of pre-Colombian activities of some nature." The upper

reaches of the Chagres river were certainly well populated and it is assumed that several pre-Spanish villages and earlier, more transient settlements, are submerged beneath Lake Gatun.

3. Pre-Colombian archaeological sites located during the cultural survey

A. de Lesseps island

Sheet 4243 IV SE, 626850E-1001475N

The pristine cultural environment of de Lesseps island was disturbed considerably by land-levelling operations undertaken in 1973. In the northern sector of the island, culture-bearing strata have been totally eliminated and the land surface degraded as much as twenty feet. (Humic soil in this area has formed subsequent to the destruction). In the higher, south-west portion, grading has been less extensive and some cultural material was in evidence. An outcrop of volcanics near the present-day summit, might well have been exploited in antiquity for grinding-stones, but no evidence of human interference was noted. At the edge of the escarpment created by the differential grading activity, a small pottery vessel was recovered, embedded in the laterite (fig.1). This appeared to be still in situ - perhaps part of a burial, the topmost part of which has been obliterated. No other artifacts were in association. The vessel had been partly broken by the machinery and is highly weathered. No typological studies have been undertaken in the area: assumed affinities are with the Central Region (west Panamá province to Chiriquí) and a date of manufacture later than 900 A.D. is likely. A search over the (upper) area of less intense grading, revealed only one, possibly pre-Spanish potsherd.

The afore-mentioned materials probably refer to sporadic activities around a convenient, but steep-sided vantage point overlooking the river Chagres. At the western end of the island, where the land surface slopes more gradually towards the lake level, the possibilities of recovering in situ archaeological material are greater; heavy scrub precluded an accurate search at this point.

B. The islands in Mamei Curve

Mamei, west

Sheet 4243 III NE, 635125E-10006745(western point)

This island was completely covered with tall grass and shrub growth and has very steep banks: accurate survey on top of the present-day surface was not possible. Presumably, past grading activities have disturbed or modified the in situ cultural material. On the beach area at the south-western extremity, eight sherds were recovered, that are presumably pre-Colombian (one of two rims is illustrated in fig. 1). A chalcedony core, with bipolar fractures, has long blade, as opposed to flake scars: longer-than-wide, rectangular blades are generally associated in Panamá with at least incipient agricultural activity. Rim type, fig. 1,a, is recovered frequently in eastern Panamá. At Miraflores, Río Bayano, similar forms are associated with C.14 dates spanning 685 to 895 A.D. In the bank of the opposite, north-western beach, a humic layer was located beneath the debris of the latest grading activities. It is overlain by about 30 cms. of laterite, pushed there by the bulldozer blades. It is presumably the provenience of pre-Colombian material found below, on the beach; one sherd of pre-Colombian? manufacture was discovered in situ.

Two of the total of eight sherds, are similar in form to fig.1,a.

Mamei, central

635500E-1007625N

This island has been almost completely eliminated and no survey was attempted.

Mamei, east

635750E-1007625N (western point)

Grading activities have eradicated the top-soil and shattered mudstone has been spread over the north-eastern extremity. One possible pre-Colombian sherd was found on the north-eastern beach.

Archaeological material found on the three Mamei islands is probably contemporary and representative of a small agricultural settlement on the banks of the Chagres.

C. San Juan Island

637250E-1008500N (northern extremity)

When surveyed in late September, the most northerly part of San Juan island was being cleared by bulldozers; by October 16th., this operation had completely eradicated the in situ archaeological remains. To the north of the small isthmus which divides the island into two halves, the original grading uncovered pre-Colombian material in some profusion and had pushed it southwards, where numerous sherds and flakes could be found mixed with humic soil and the remains of a masonry structure.

A total of 150 undiagnostic and weathered body sherds, 16 necks and rims (fig. 1 ) and ten flakes of chalcedony, were collected in September. They probably represent the débris of one or a few small houses, most likely accumulated over a short period of time. (Though indications of the pristine stratigraphy have been blurred, there seems never to have been much soil depth). A search to the south of the small isthmus revealed no cultural material; however, forest cover and deep leaf mould prevented a detailed survey.

The same general comment applies to San Juan as to the other neighbouring sites: the cultural material probably relates to a scattered population of agricultural hamlet-units, situated at the higher points along both sides of the river Chagres, in a chronologically random fashion.

#### D. Gorgona Island

640300E-1007850 N (northern extremity) Sheet 4243 II NW

On the northwestern shore of the island, are some rectangular excavations, measuring about 2 x 4 ft. and between 2½ and 5 ft. deep. Nearby, there was a church in post-Conquest times and would assume that the pits are recent work. Embedded in the wall of one of these cuts, however, was a jasper flake of presumed pre-Colombian manufacture. It was found seemingly in situ in the laterite, about 2 ft. below the surface. Below one of the cuts, on the 'beach', was a "cleaver" of chalcedony: a number of flakes have been struck of both edges of one side of a triangular-sectioned, angular pebble. The only other trace of pre-Colombian activity encountered was a rim sherd illustrated in fig. 1.b. Unless the flake found in the pit wall is of considerable antiquity, it is likely that the extensive and continual Colonial and construction works

have utterly destroyed in situ traces of pre-Colonial activity.

E. Santa Cruz Island

641360E-1007525N Sheet 4243 II NW

The most northerly section of Santa Cruz island has been heavily disturbed by earth-moving activities for many years. To the north-west, the surface has been stripped down to the laterite, while in the north-east, the bedrock beneath the laterite has been exposed. Humic soil formation in both these areas is secondary and recent. While grass cover precluded an accurate survey, sherds and lithic materials could be found scattered all over the north-western sector. Erosion has left most of the artifacts on "rain pedestals." About a dozen extremely small and weathered sherds were recovered. 18 flakes of chalcedony are of heterogeneous nature. They were dispersed haphazardly over the studied area and showed no pattern indicative of occupational refuse. They are all probably ex situ. Three of the flakes are large, ?hard-hammer struck from pebble nodules, two of which may have been used beforehand as hammer-stones. One has a pseudo-burin flake extracted and a quadrilateral, pointed edge (a graver?) 14 chalcedony flakes have been randomly struck from irregular-shaped cores. Three show usage wear on various edges. One flake has been struck from a polyhedral blade core. The morphology and few indications of patterns of use are no clue to the relative ages of the stone instruments. Santa Cruz probably represents one of several small communities distributed in suitable localities up and down the Chagres.



#### 4. Other pre-Colombian archaeological sites

In those areas in use, or to be used for dumping on land, the topography, vegetative cover and the nature and extent of past dumping activities, make the accurate location of pre-Colombian sites extremely difficult. Survey suggests that it is doubtful whether there are any pre-Colombian materials of importance either buried beneath the dumps or in close proximity to them: the low-lying and generally swampy terrain is, and probably always has been, unattractive for human settlement. As stated in section A.2, the banks of the Río Chagres were the scenario of constant human activities before the Spanish conquest and scores of sites must have been flooded by the waters of Lake Gatun or obscured by forest cover. It is also likely that many sites remain to be located along the present-day shoreline of the lake, especially at the mouths of water courses.

#### 5. The environmental impact of the dredging programme on the pre-Colombian archaeological resources

A meaningful assessment of the environmental impact of the dredging programme on the pre-Colombian archaeological resources depends on notions of the relative value of the type of cultural material to be affected. It is the consultant's opinion that totally to ignore the importance of even the most superficial survey, is unsound: modern archaeology is concerned primarily with problems of past demography and the most diminutive and transiently utilised sites, are valuable assets. When any future modification to the existing land surface is contemplated in the vicinity of the Canal,

it is important to bear in mind the ubiquity of pre-Colombian deposits, which, because they leave behind no masonry remains or saleable items (bottles, for example), are frequently overlooked or intentionally ignored.

Some of the pre-Colombian sites which are situated above the lake level, on areas of land that are within the limits of the Canal widening programme, have either been totally destroyed already (San Juan and Santa Cruz), or irrevocably modified (Mamei, Gorgona and de Lesseps). Of these localities, only San Juan possessed pre-Colombian material in any quantity. A survey more anticipatory of the clearing work would probably not have recovered material of better quality, nor would excavation have clarified problems of stratigraphy or spatial extent (the pre-Colombian deposits at this point had already been considerably modified by post-Conquest activities, specifically the erection of the masonry structure on top of the island, which presumably dates from Construction days). The Mamei curve islands, Gorgona and Santa Cruz had also been heavily disturbed by post-Conquest work: a brief survey suggested that a more intensive study was not warranted. De Lesseps island, which will be totally eradicated at a later date, has been so modified by grading that what little material that has survived in situ, was recovered by the consultant or is too damaged to be useful. We do suggest, however, that a brief inspection of the western, lower end of the island be undertaken when the vegetative cover has been stripped.

As regards those pre-Colombian sites already submerged by the Lake,

we should make a distinction between those in the immediate vicinity of the Canal and near dumping areas, and those which are situated well away from canal maintenance activities. In the first case, sites will either have been removed or extensively damaged by industrial activities, or be so laden with silt and other débris, that the recovery of whatever material that might have survived, would not be feasible. It is true that, in the past, some pre-Colombian objects have been recovered from dredge spoil (see section A.1): though these might be of interest from a typological point of view, analytically they are almost useless. Structures in the pre-Colombian period were almost exclusively of wood and other rapidly perishable materials; most traces of pre-Colombian activities, other than non-organic artifacts, would have vanished between 1501 and the French canal, and information other than stone- and pottery-tools would not be forthcoming. Though we believe that the recovery of all pre-Colombian material aids in the reconstruction of the total archaeological picture of the Isthmus, we feel that, as regards sites in the immediate vicinity of the Canal channel, the time and expense involved in a submarine search and the monopoly of scarce trained personnel would be disproportionate to the overall archaeological value of such sites. Efforts would be far more profitably spent locating unmodified sites on dry land along the banks of the Chagres river.

When we consider the shoreline of Lake Gatún, well away from Canal operations, the potential value of undisclosed archaeological sites is far greater. When the water level is lowered, innumerable pre-Colombian sites are likely to be exposed just beneath the present-day lake edge,

especially where water courses flow into the lake. A similar phenomenon has occurred at Lake Madden, along whose shores literally tons of material have been recovered since the 1930s. The kind of indiscriminate collecting that has been practised around Lake Madden, though socially unavoidable, has helped to limit the scientific value of the exposed material. In this context, we feel that, as soon as the level of Lake Gatun is dropped and the widening and extension of small-boat channels contemplated, an archaeological survey be conducted, as it is vital for materials to be located and studied in as pristine a state as possible.

## B. Archaeological resources (Colonial period)

### B.1. Introduction

The Río Chagres, or Río de los Lagartos, as it was originally named, was first explored by Hernando de la Serna in 1527. On finding that the river was navigable, de la Serna recommended the construction of a custom-house and a paved road connecting the river to Panamá. (Until this time, overland merchandise travelling to and from Panamá and Nombre de Dios, went by way of the Camino Real). The Cruces Trail was in use by 1533 and it seems that the Custom House was actually constructed in 1536. From this time until the building of the Panamá Railroad, Venta de Cruces, the river Chagres and the trail saw heavy traffic: goods were shipped along the coast from Nombre de Dios in lighters, and up the river in barges to Venta de Cruces, where they were transhipped to a mule train for Panama. At first, harassment by corsairs and bands of "cimaroons" was frequent, but apparently Venta de Cruces was spared a sacking (the town razed by Drake's men in 1573 was Venta de Chagres, contrary to affirmations in the Spanish records, which state that Cruces was destroyed by the English). The Cruces Trail was paved for the first time early in the seventeenth century (? by 1630). To protect the Chagres traffic, the building of a fort at the mouth, San Lorenzo, was begun in 1597; an earthwork defense was built at the junction of the Gatún and Chagres rivers in 1750, when San Lorenzo had proved to be not as impregnable as was imagined. Another fort was built at the mouth of the Trinidad river. In 1720, a plan was proposed to move the Custom-House downriver to Gorgona, situated at the farthest navigable point in the driest

part of the dry season. This move was never undertaken, however, the trail to Gorgona was never paved, and Cruces remained the major emporium on the Chagres river.

A number of small settlements grew up along the Chagres river, as ancillaries to the barge and mule trade. Some of these may have been simply chronological extensions of the Indian villages alluded to in Section A, while others were certainly "founded" by bands of cimaroons. The map of the Dutch pirate Exquemeling, dated ?1687, but probably copied from an earlier Spanish map, shows settlements at Tabernilla and Matachín, and perhaps at Ahorca Lagarto and Palo Matías. Gorgona - San Cayetano de Gorgona - is first mentioned in a map of 1729. An undated copy of a ? 18th. century map shows the following riverside settlements: Chagre (at the mouth), Dos Hermanos, Arenal Grande, Bohío Soldado, Bailamono, Peña Blanca, Frijol, Barro Colorado, Barbacoa(s) and Gorgona. A settlement called Trinidad is noted in other 18th. century maps, while the 1750 version of Isaak Trion, adds Juan Gallegos and Vaca Monte to the list. This gradual growth of small settlements along the Chagres obviously reflects the lucrative nature of the Chagres trade.

## B.2 The environmental impact of the Canal widening programme on Colonial archaeological resources

It would seem that the only settlements along the Chagres which had masonry structures in Colonial times were Fort San Lorenzo and Venta de Cruces. (The fort at Gatún was an earthwork). This lack of masonry structures

obviously limits the conservation of Colonial-age cultural material that might have survived flooding and post-Colonial activities. The fort at the southern junction of the Chagres and Gatún rivers lies directly under the present-day canal entrance to Gatún locks and would not be available for sub-aquatic investigation. Evidence would, besides (as we have inferred) be limited because of the lack of masonry. The site is not near a used or prospective dump area. Of the sites mentioned in the pre-1800 maps, all are either wholly or partially submerged beneath Lake Gatun, except Chagre, at the mouth and part of Gorgona. Ahorca Lagarto, Bohío Soldado, Frijol, Barbacoa, Baila Mono and Matachín were all used as stations when the Panama railroad was built and, while we have no way of telling exactly where the Colonial settlements were in relation to the industrial works, it is quite probable that these villages have been either very considerably modified or totally destroyed by the railroad. Besides, Peña Blanca, Tabernilla and Baila Mono (also the seats of post-Spanish activities) have been largely destroyed by dredging undertaken prior to this report, while Frijol is in the area of a large prospective dump (see section C). Dos Hermanos, Arenal Grande and Trinidad will not be affected by the dumping or dredging.

In sum, one cannot envisage the widening programme's altering or eliminating any Colonial-age site that has not already been subjected to considerable damage by more recent activities. As these sites were all small, and largely working-class communities, without large masonry structures, it is very doubtful whether subaquatic research would recover any pristine remains at all (stratigraphy, one of the primary justifications

for excavations on Colonial age village-sites, would be out of the question).  
Terrestrial dumping areas outside the river Chagres zone, are not known  
to have affected or to be near any Colonial sites.

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## C. Railroad and construction period sites

### C.1. Introduction

In terms of the degree of actual or prospective damage to archaeological sites, the Canal widening programme will probably affect more material dating from 1850 to the present-day, than to the Pre-Colombian and Colonial periods. This is due to the intense engineering, economic and settlement activity which followed the laying-out of the Panama Railroad in the 1850s. However, the real archaeological value of the endangered or destroyed material must be weighed against a number of factors: i) the damage already perpetrated by the French and American canal workings; ii) past and recent dredging activities; iii) the availability and quality of existing documentary sources.

### C.2. Industrial and settlement sites

The Totten map of 1857 lists the following places as stations for the Panamá Railroad on the river Chagres, below Gatún (some of these have already been considered in preceding sections): Ahorca Lagarto, Bohío Soldado, Buena Vista, Frijoles, Tabernilla, Barbacoa, San Pablo, Baila Mono, Juan Grande, Mamei, Gorgona and Matachín. Other settlements, other than stations, are also referred to: Miraflores, La Bruja, Dos Hermanos, Palo Horqueta, Palo Matías, Peña Blanca, Barro Colorado and Palenquilla. By the time the 1900 map was drawn, Massías, Vamos Vamos and Chagrecito have been added to the list.

### C.3. Environmental impact on sites of the nineteenth and twentieth centuries

Of the above-mentioned sites, La Bruja, Dos Hermanos, Palo Horqueta, Palo Matías and Ahorca Lagarto are now under the waters of Lake Gatún and will apparently not be further affected by the dredging spoil. Frijoles,

also under water, will soon be obscured completely by spoil for Dump 15. The town-and-station site of Tabernilla (in existence at the end of the seventeenth century), will be more completely buried and/or destroyed. (Recent dredging ploughed through part of the town, disgorging artifacts and other remains through the pipes). The Canal Company map of 1905 shows few buildings above the 80 ft. contour. The highest point of the westernmost of the three Mamei Strait islands, was apparently levelled during American construction. The buildings drawn into the 1905 map have probably been eliminated already. (The few sherds of ginger-beer bottles and clouded glass, no doubt refer to activities of this period). The French dug lock workings at the junction of present-day de Lesseps and Barro Colorado islands; what remains of their excavations and machinery will be removed when de Lesseps island is eradicated in 1977. At Juan Grande, mentioned in section A.C.3 as a pre-Colombian site, no structures are acknowledged in the 1905 map, though a concrete building, whose foundations were destroyed in the 1975 grading, was presumably an artifact of the American construction period. The part of San Pablo which is under the lake water, is beneath dumps 10 and 11 and will be covered more completely; Bailamonos will probably be obliterated by the spoil of dumps 7-9. The large construction (and earlier) settlements of Gorgona and Matachín, will be either partially buried or removed by the widening of Gamboa Reach. Chagrecito will probably be completely destroyed or buried by the same work.

Perhaps the most complete loss to the recent history of Panamá will be Frijoles, which will be completely covered by the dump spoil. Nevertheless, years of accumulative dumping in the vicinity and constant fluvial action, have already left an overload of silt and any attempts at subaquatic salvage

would be severely hampered (divers report a visibility of less than five feet and vouch for good working conditions only during the driest part of the dry season). Our comment about Frijoles applies to the other sites of this period which will be buried by dredging spoil: the existing pictorial and graphic documentary sources outweigh the potential information to be gained from subaquatic work, which would, in any case, be especially demanding of time and human resources. A large part of the town of Gorgona lies above the 77-87 ft. contour and those parts which have not been stripped or covered by the recent (1975) grading work, would still be available for study by interested persons after the widening programme. The site survey conducted by the consultant before the October grading operations, found bush cover too dense for more than a cursory appreciation of the archaeological potential of Gorgona. The rectangular cuts mentioned in section A.3.D, supposedly dug in connection with a church, had no direct association other than a stone flake (which is hardly Christian!) Other archaeological remains included late nineteenth and early twentieth century china and glass sherds, scattered over exposed areas of the surface and on the beaches, and, further inland, a series of rubbish dumps which seemed to have been completely disembowelled by amateur "bottle hunters". In October, 1975, about 200 ft. was entirely stripped or covered by bulldozer "push." A second survey made during this work, recovered more recent porcelain sherds. The buildings that have been eliminated by this work at Gorgona, are well documented in the Company records. It is most unlikely that any excavation or

survey would add significantly to the existing knowledge of Gorgona: exceptions which spring to mind are the recovery of poorly documented artifacts, industrial and domestic activities and eating habits of different sectors of the community (recently studied in a contemporary context by Rathje and his associates in California). In these cases, certain stratigraphic conditions would be required and it is doubtful whether the northern part of Gorgona island would have met the prerequisites.

The same general comment applies to Matachín as to the other canal-side sites: sub-aquatic work would be feasible, but would be counter-balanced by practical difficulties (murkiness of the water, sedimentation), cost and the poverty of the information recovered in relation to other sources. For this town, as for Gorgona, there are excellent plans and photographic sources. A few other pertinent comments about the potentiality of these sites and others, will be dealt with in the epilogue.

#### C.4 Recent sites outside the Chagres drainage which will be affected by the Canal-widening programme

No other sites outside the Chagres drainage, dating from the nineteenth and twentieth centuries, are known by the consultant to be in danger from dumping activities; most of the terrestrial dumps, we repeat, are in low-lying and unattractive localities.

## E. Epilogue

By way of a conclusion, we feel that, when the widening programme is viewed as a whole, the destruction of existing archaeological resources will not remove much information, whose salvage would radically amplify our knowledge of past activities in the Canal area: though some sites will certainly be damaged irrevocably, our conclusions are that the nature of the in situ archaeological material, past human interference, accumulative sedimentation and the standard of extant documentary sources, counterbalance the real and potential damage, in the majority of cases. One always has to ask, in the case of sites like Frijoles a number of pertinent questions, if some kind of salvage work is contemplated: i) are there specialists available for the kind of subaquatic work involved? ii) would it be worth the time and expense? iii) would the time and finances involved be more worthwhile applied elsewhere, especially if there are sites still in existence above water? We feel that, from the strictly archaeological point of view, the burying of Frijoles, which is now already well-sedimented, would only obliterate material whose degree of conservation is probably poor and whose historical value has, in the most part, been documented. This is a value judgement of this consultant, however; a problem of salvage archaeology is always to determine whether improved recovery techniques at a later date would alter an assumed impression of what is to be recovered and what is not. Gorgona, the other large construction settlement, has only partly been altered and we repeat that some material will be left in situ for interested students.

As regards the pre-Colombian sites, we feel that it is advisable to recommend a greater degree of coordination between the Canal agencies and those entities which are concerned with the safeguard of cultural material

in Panama (all work of this nature is coordinated by the Patrimonio Historico del Instituto de Cultura). The consultant's brief field survey managed to rescue some information which, albeit fragmentary, will be of use to pre-historians who might consider reconstructing the pre-Colombian settlement patterns along the Rio Chagres. We repeat that pre-Colombian archaeological material often escapes the eye of untrained observers. Prehistoric sites differ from historic in that only archaeology can recover information from them: once destroyed, the damage is irrevocable. Numbers of sites must suffer, year by year, the fate of San Juan. We suggested that, once the lake level is lowered, a survey be made (especially in that area which has never been modified by Canal workings and dredging), to determine the location newly exposed material and to decide whether it is of value for subsequent work. We also recommend that construction works in general be reported in advance to the parties interested in the conservation of cultural material; often, a brief survey, like that undertaken by the consultant, is all that is needed to clear up doubts and record material, which is - as we have seen - frequently ex situ.

U. S. and Panamanian Conservation Laws and Regulations

I. ENVIRONMENTAL LAWS AND POLICIES APPLICABLE TO THE ARMY IN THE CANAL ZONE

1. Federal Statutes

- a. National Environmental Policy Act of 1969 (NEPA) (PL 91-190), 1970.
- b. Federal Water Pollution Control Act Amendments of 1972 (PL-92-500), Sections 311 and 312, 1972. Discharge of oil  
Marine Sanitation Devices
- c. Marine Protection, Research, and Sanctuaries Act of 1972 (PL-92-532), 1972. **(ocean dumping)**
- \* d. Noise Control Act of 1972 (PL 92-574), Section 4, 1972.
- e. Clean Air Act of 1970 (PL 91-604). (4th subchapter 2 moving emissions)
- f. Solid Waste Disposal Act as amended (Title 42 U.S. C. 3251 ET SEQ)
- g. Occupational Safety and Health Act (OSHA) were it regulates the environment.
- h. Endangered and Threatened Wildlife and Plants, Federal Register, VOL .5, No. 138, Sep. 26 1975.

2. Executive Orders

- a. Executive Order 11507, "Prevention, Control, and Abatement of Air and Water Pollution at Federal Facilities, February 4, 1970.
- b. Executive Order 11514, "Protection and Enhancement of Environmental Quality," March 7, 1970 (35 FR 46, 4247 (1970)).
- c. Executive Order 11752, "Prevention, Control, and Abatement of Environmental Pollution at Federal Facilities," December 17, 1973. (Promulgated under FWPCA Clean Air Act)

3. DOD Directives and Army Regulations.

- a. DOD Directive 5100.50, "Protection and Enhancement of Environmental Quality," May 24, 1973.
- b. DOD Directive 5500.5, "Natural Resources Conservation and Management," 1965, (32 CFR Part 253).

- c. DOD Directive 6050.1 "Environmental Considerations in DOD Actions,"  
March 19, 1974.
- d. AR 40-5, Health & Environment.
- e. AR 200-1, Environmental Quality, Environmental Protection and Enhancement.
- f. AR 420-74, Natural Resources - Land, Forest, and Wildlife Management.
- g. AR 750-20, Prevention, Control, and Abatement of Pollution from Mobile  
Equipment.
- h. FORSCOM Reg 420-5, Preservation, Protection and Enhancement of  
Environment..
- i. FORSCOM Cir 200-1, Environmental Quality, United States Army Forces  
Command Environmental Program.
- j. USARSO Reg 40-12, Medical Services, Health and Environment.
- k. US SOUTHCOM Reg 420-1, Environmental Quality Control.
- l. 193d Inf Bde (CZ) Reg 200-1, Environmental Quality, 193d Infantry  
Brigade (Canal Zone) Environmental Program.
- 4. Canal Zone Laws and Policies.
  - a. Establishment of Procedures to comply with the National Environmental  
Policy Act, Federal Register, Vol 41, No. 86, May 3, 1976.
  - b. Code of Federal Regulations (CFR), Title 35, Chapter 1, 1974:
    - 1. Part 61, Health Sanitation and Quarantine. (Pesticides, Herbicides)
    - 2. Part 103.21, Precautions Against Sparks, Smoke, etc.
    - 3. Part 103.22, Vessels at Fuel Berths.
    - 4. Part 113, Subparts B, C and D, Handling Explosives, Hazardous Liquid  
Cargoes and other Hazardous Materials. (Radioactive Material)
    - 5. Part 125, Sanitary Requirements: Vessel Wastes, Garbage, Ballast.



II. ENVIRONMENTAL REGULATIONS, POLICIES, AND  
COMMITTEES IN THE CANAL ZONE  
December 1974

1. Some of the laws and regulations that govern environmental matters in the Canal Zone apply here only; some apply here and in the States both; other regulations apply in the States but not here.

2. The following Federal environmental quality control laws and regulations are applicable in the Canal Zone:

- a. National Environmental Policy Act of 1969 (NEPA)
- b. Section 311, Federal Water Pollution Control Act of 1972 (FWPCA) regulating the discharge of oil and other hazardous substances into the navigable waters of the U.S.
- c. Section 312, FWPCA regulating marine sanitation devices.
- d. Marine Protection, Research and Sanctuaries Act (Ocean Dumping Act).
- e. Section 4, Noise Control Act.
- f. Executive Order 11514.
- g. Occupational Safety and Health Act (OSHA) where it regulates the environment.

3. In addition to the Federal statutes the following Canal Zone laws and policies apply to the local environment. While several of these are basically safety oriented they have been included because of their bearing on the human and natural environment of the Canal Zone.

- Superseded by "Procedures to comply with NEPA FR 41 11086 May 3, '76"
- a. Environmental Control Policy for Canal Agencies (published in Federal Register Vol. 37, No. 204, October 20, 1972. This policy applies only to the Panama Canal Company/Canal Zone Government and not military components and other Federal agencies in the Canal Zone).
  - b. Guidelines for the Preparation and Coordination of Environmental Impact Statements for Canal Agencies, dated December 15, 1972. (This guides our people in handling Environmental Impact Statements (EIS's). So far, we have submitted one draft EIS to the CEQ. A number of Environmental Assessments have been prepared, submitted to our EQC and evaluated as not requiring an EIS. In the earlier documents, the EIS's are called "Résumés.")
  - c. Title 35, Code of Federal Regulations (CFR)
    - (1) Chapter 1, Part 61 Health Sanitation and Quarantine (includes controls on use of pesticides, herbicides, and rodenticides).
    - (2) Chapter 1, Part 103.21 Precautions against sparks, smoke, etc. from vessels.
    - (3) Chapter 1, Part 103.22 Vessels at Fuel Berths.
    - (4) Chapter 1, Part 113, Subparts B, C and D: Handling Explosives Hazardous Liquid Cargos and other Hazardous Materials (noxious chemicals, radioactive materials).

c. Canal Zone Administration and Regulations (CZAR).

1. Chapter 5, Part 167.11, Transporting Explosives, Flammable Liquids and Liquefied Petroleum Gases.

2. Chapter 5, Part 167.85, Mufflers: Prevention of Noise.

d. Other Environmental Guidance:

k. Regulations Governing the Storage and Handling of Petroleum Products in Bulk at Canal Zone Terminals, 164, Revisions 1966 and 1972.

2. Summary of Oil Pollution Laws and Regulations Applicable in the Canal Zone.

## c. Interagency Environmental Committee:

Panama Canal Company/Canal Zone Government representatives--  
 Engineering and Construction Director, Chairman  
 Environmental Coordinator, Executive Planning Staff  
 Chief, Division of Sanitation, Health Bureau  
 Representative of Supply and Community Service Bureau  
 USSOUTHCOM Staff Engineer (J-4)  
 U. S. Army representatives from--  
 Facilities Engineering  
 Environmental Health  
 U. S. Navy Civil Engineer  
 U. S. Air Force representatives from--  
 Civil Engineering  
 Environmental Engineering

## d. Technical Steering Committee:

Engineering and Construction Director, Chairman  
 USSOUTHCOM Staff Engineer (J-4)  
 U. S. Embassy representative  
 Government of Panama representatives from--  
 Ministry of Planning and Economic Policy  
 Director of the Pan-American Highway  
 Ministry of Public Works  
 Ministry of Housing

e. Committee for the Protection of the Human Environment,  
Government of Panama

Representatives from--  
 Ministry of Health  
 Ministry of Planning and Economic Policy  
 Ministry of Housing  
 World Health Organization/Panama Health organization

f. Committee for the Protection of the Panamanian Environment,  
Government of Panama

Representatives from--  
 Ministry of Housing  
 Ministry of Planning and Economic Policy  
 Ministry of Health  
 National Water and Sewerage Systems Institute (IDAAI)  
 Hydraulic Resources and Electrification Institute (IRHE)

Enclosure: Summary

(5) Chapter 1, Part 125 Sanitary Requirements: Vessel Wastes, Garbage, Ballast.

d. Canal Zone Administration and Regulations (CZAR)

(1) Chapter 5, Part 167.111: Transporting Explosives, Flammable Liquids and Liquified Petroleum Gases.

(2) Chapter 5, Part 167.85: Mufflers; prevention of noise.

e. Regulations Governing the Storage and Handling of Petroleum Products in Bulk at Canal Zone Terminals. (This document has a different primary purpose but a major environmental secondary effect.)

4. The sections of the Federal Water Pollution Control Act that require treatment of sewage before running it into the water do not apply to the Canal Zone, but we comply as a matter of policy as far as we consider it practical. The military, who number about half the population of the Canal Zone, are required by DOD directives to comply.

5. A recent summary of the applicable oil pollution laws and our actions under them was distributed to local oil companies and shipping agents. A copy is attached.

6. In Panama, the government has established regulations to protect the environment in connection with urban development.

7. Local committees charged with coordination and control of environmental affairs are:

a. Environmental Quality Committee, Panama Canal Company/Canal Zone Government:

Lieutenant Governor, Chairman

Chief, Executive Planning Staff

Engineering and Construction Director

Health Director

Supply and Community Service Director

General Counsel

Environmental Coordinator, Executive Planning Staff, Secretary

b. Environmental Quality Committee, U. S. Southern Command:

USSOUTHCOM Staff Engineer (J-4)--Chairman

USSOUTHCOM Petroleum Officer (J-4)

Army Director of Facilities Engineering

Army Surgeon (Environmental Health)

Navy Civil Engineer (N-4)

Air Force Civil Engineer

Air Force Surgeon (Environmental Engineering)

### III SUMMARY OF OIL POLLUTION LAWS AND REGULATIONS APPLICABLE IN THE CANAL ZONE

#### 1. TITLES

- a. Section 311 of the Federal Water Pollution Control Act as amended, 33 USC § 1321 (FWPCA).
- b. Section 125.1 of Title 35 of the Code of Federal Regulations (35 CFR 125.1).

#### 2. APPLICATION

a. Sec. 311 - FWPCA - Applies to all vessels, on-shore facilities and offshore facilities and prohibits the discharge of oil into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone.

b. 35 CFR 125.1 - Applies to all vessels in the waters of the Canal Zone and prohibits the discharge of ballast, ashes, cinders, boxes, barrels, straw, paper, heavy slops, engine or fire room bilge water, oil, or any other matter into these waters.

#### 3. ENFORCEMENT AGENCIES

##### a. Sec. 311 - FWPCA

- (1) Environmental Protection Agency
- (2) U. S. Coast Guard
- (3) Panama Canal Company

##### b. 35 CFR 125.1

- (1) Panama Canal Company/Canal Zone Government

#### 4. PENALTIES

##### a. Sec. 311 - FWPCA

(1) Sec. 311(b)(5) - \$10,000 criminal penalty and imprisonment of up to one year; or both, for failure to immediately notify the appropriate authority of a discharge of oil. The person-in-charge is liable.

(2) Sec. 311(b)(6) - \$5,000 civil penalty for harmful discharges of oil. Clearances for vessel departure can be withheld until surety has been posted.

#### 5. ENFORCEMENT PROCEDURES - CLEAN-UP COST

a. The pollution laws and regulations applicable in the Canal Zone are actively and intensively enforced as a part of the oil pollution prevention program. Primary responsibility for enforcement rests with the Dredging Division Oil Pollution Control Units in cooperation with the Canal Zone Police. All Panama Canal employees are responsible for reporting violators. Regular patrols are made of all activities and areas where a potential for oil pollution exists. Patrols are made by foot, vehicle, light aircraft and boat.

##### b. Typical Sequence of Events

(1) Violation is reported to Dredging Division Oil Pollution Control Center by telephone or radio.

(2) A District Oil Pollution Officer is immediately dispatched to investigate the report.

(3) After a thorough investigation, including photographic, material and/or personal evidence collection, a determination is made of probable guilt by the District Oil Pollution Officer.

(4) If there is sufficient evidence of a violation, the master of the vessel, or in his absence the senior officer aboard the vessel, is notified that a violation of Canal Zone regulations has occurred, the nature of the violation, the intent to place him (the master) under arrest for the violation and the authority to do so (6 CZC § 3735).

(5) The master is taken to the nearest police station where he is booked and posts bail. (Bail normally is set at \$1,000 for oil pollution cases.) The master is informed of his right to trial before the Magistrate's Court and the date and time for trial.

(6) An official pollution report (POLREP) is prepared by the investigating Oil Pollution Officer to be forwarded to Headquarters, Seventh Coast Guard District.

(7) The master stands trial in the Magistrate's Court and upon a verdict of guilty is subject to a \$100 fine or 30 days in jail or both. If the master fails to appear, at the discretion of the Court, the bail is forfeited.

(8) A formal legal notice presenting the particulars of the case and outlining the liability for further prosecution and cleanup costs as provided by the FWPCA is prepared. Copies are provided the master, owner/operators and local agents.

(9) A complete and detailed investigative case report is prepared by the Oil Pollution Officer and is sent by the On-Scene Coordinator to the Seventh Coast Guard District for follow-up enforcement action. A recommendation is made on the amount of civil penalty recommended based upon the facts surrounding the incident.

(10) The U.S. Coast Guard advises the owner/operator of the vessel, in writing, of the intent to levy a civil assessment, the reasons therefor and amount proposed. A time limit for reply and right to hearing is also stated.

(11) After consideration of the facts as presented by the owner/operator and hearing testimony, if any, the Coast Guard levies a civil penalty of up to \$5,000.

(12) Civil assessments are paid directly to the Coast Guard. Failure to pay the penalty results in civil actions against the owner/operators.

### c. Clean-up Cost.

Under the provisions of Sec. 311 of FWPCA, owner/operators are liable for all costs of oil spill clean-up incurred by the Federal government or its agencies or instrumentalities. In the case of the Canal Zone, if the violator does not take appropriate action to clean up the oil spill, the Panama Canal Company Oil Pollution Unit will clean up the oil spill and the total cost incurred plus overhead will be billed to the ship's account. If there is reason to believe that this indebtedness to the Company will not be paid, the vessel may be held. No claim for damages shall be allowed for such temporary holding (35 CFR 103.7). Clearance may also be withheld until payment of outstanding charges has been secured [35 CFR 101.13(2)].

6. EXAMPLES OF VIOLATIONS OF POLLUTION LAWS AND/OR REGULATIONS

a. Under: 35 CFR 125.1(2)

Example: June 26, 1973 - M/V NEWARK - Ship's steward disposing of garbage overboard in Canal Zone waters. Master arrested; fine reduced to \$75 on basis of steward's salary. Ship delayed approximately two hours.

b. Under: Section 311 of the Federal Water Pollution Control Act as amended and 35 CFR 125.1.

Example: Vent Overflow: July 30, 1974 - M/V RIKKE BENA - while bunkering at Pier 7-A, Cristobal, C.Z. spilled an undetermined amount of marine diesel into the water. Spill was caused by vent overflow #4 fuel tank midship. Master arrested and bail of \$1,000 posted. Ship sailed and bail was forfeited. U. S. Coast Guard notified. That agency has initiated proceedings to assess civil penalty.

Example: Collision July 11, 1974 - M/V MINI-LINER had collision with the M/V COLUMBIA at the mouth of the Cristobal Breakwater. As a result of the collision the M/V MINI-LINER sustained considerable damage and was leaking light diesel into the water (Potential of spill was 1400 barrels). Master arrested and found guilty, however no fine was assessed and sentence suspended. Ship was billed for cleanup costs. U.S. Coast Guard notified. That agency has initiated proceedings to assess civil penalty.

Example: Hull (Rivets) and deck leaks June 26, 1974 - M/V WITFUEL - anchored in Gatun Lake effecting engine room repairs was discovered to be leaking marine diesel oil from the starboard side. Master was arrested and found guilty. He was sentenced to pay a fine of \$100 and to spend a period of 30 days in jail which was suspended for one year upon the condition that during and within said period the defendant not commit a similar offense. U.S. Coast Guard notified. That agency has initiated proceedings to assess civil penalty of \$5,000.



Example: Pumping Bilges: May 2, 1974 - S/S JAMES -  
 at Pier 15-B, Ilo. Hope, C. Z. was discovered  
 pumping bilges pierside. Master arrested and  
 fined \$100. U.S. Coast Guard notified. That  
 agency has initiated proceedings to assess civil  
 penalty of \$5,000.

Example: Line Failure onboard vessel July 3, 1974 -  
 M/V SIFNOS while taking bunkers at Dock 18-C,  
 Balboa, C.Z. Shipboard line failed and oil flowed  
 on deck, through scupper into the water. Master  
 arrested and bail of \$200 posted. Bail was for-  
 feited. U.S. Coast Guard notified. That agency  
 has initiated proceedings to assess civil penalty of  
 \$3,000.

## 7. ATTACHMENTS - SUMMARIES OF BASIC POLLUTION LAWS AND REGULATIONS

- a. Federal Water Pollution Control Act, as amended.
- b. Title 35, Code of Federal Regulations
  - (1) Section 125.1
  - (2) Other pertinent sections

ATTACHMENT a

Federal Water Pollution Control Act as amended (33 USC § 1321).

SUMMARYAPPLICATION:

All vessels (U.S. and Foreign) onshore and offshore facilities. All navigable waters of the U.S. including the contiguous zone. Prohibits discharge of oil, oil products, or hazardous materials, and requires immediate notification of all spills.

ADMINISTERING DEPARTMENT OR AGENCY:

Department of Transportation (U.S. Coast Guard).

ENFORCEMENT AGENCIES:

U.S. Coast Guard; Environmental Protection Agency (EPA);  
Panama Canal Company

PENALTY PROVISIONS:

Oil Discharge, Section 311(b)(6) - \$5,000 civil penalty maximum (Captain of the Port may request withholding of departure clearance until bond or other surety for \$5,000 is posted).

Failure to Notify, Section 311(b)(5) - \$10,000, one year imprisonment, or both, criminal penalty.

ENFORCEMENT PROCEDURES:

Coast Guard District Commander may assess a civil penalty for discharges. Cases involving failure to give notification of a spill referred to the Department of Justice for prosecution.

ATTACHMENT 5

## Title 35 Code of Federal Regulations

SUMMARY

## (1) Section 125.1 - DISCHARGING VESSEL WASTES INTO WATERS

(a) Vessels may not discharge or throw into the waters of the Canal Zone any ballast, ashes, cinders, boxes, barrels, straw, paper, or other solid matter; nor discharge heavy slops, engine or fire room bilge water, oil, or any other matter that will tend to deface or make the waters of the Canal Zone unsanitary. This requirement does not apply to water closet chutes, nor to the water used in cooking or in cleaning tableware.

(b) Ballast tank may not be discharged in Canal Zone waters.

(c) Before arrival from the sea at either of the terminal ports, vessels should, in a manner consistent with the requirements of the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, and all amendments thereto which are currently in force, dispose of all waste forbidden to be discharged in Canal Zone waters.

(2) (a) 125.2 HANDLING BALLAST. Vessels wishing to unload ballast must have proper chutes, so arranged as to prevent ballast from falling overboard.

(b) 125.3 REMOVING WASTES AT WHARVES. Except as provided by this section, a vessel lying at a wharf in the Canal Zone, may not place any wastes upon the wharf. Garbage may be placed in the covered galvanized iron cans supplied upon the wharf for that purpose by the Canal authorities. Vessels desiring to remove dry wastes, such as boxes, trash, paper, etc., should make request to the Canal authorities, who will place a dump car alongside to receive such matter or make other appropriate arrangements. These services are chargeable to the vessel.

(c) 125.4 REMOVING WASTES WHEN ANCHORED FOR CONSIDERABLE TIME. A vessel anchored in Canal Zone waters for a considerable length of time may get rid of vessel wastes by requesting the Canal authorities to place a garbage scow alongside. This service is chargeable to the vessel.

(d) 125.5 PENALTIES FOR VIOLATION. Whoever violates any of the provisions of this part is subject to punishment, as the case may be, as provided by 2 C.Z.C. 912(1), 76A Stat. 35, or 2 C.Z.C. 1331, 76A Stat. 45, by a fine of not more than \$100, or by imprisonment in jail for not more than 30 days, or by both.

(e) 103.2 Denial of passage to dangerous vessels (leaking tankers, vessels running out of class).

(f) 103.7 Temporary holding of vessels (investigative purposes).

(g) 103.15 Boarding of vessels at anchor or underway (inspection and arrests for violations).

(h) 103.21 Precautions against sparks, smoke, etc., (excessive smoke pollution).

(i) 107.2 Crew on watch (adequate crew members for bunkering operations aboard vessels).

(j) 113.109 Connecting Cargo Hoses (bunker hoses supported by vessel will be the responsibility of on duty senior deck officer).

(k) 113.92 Grading of vessels in accordance with products transported (fuel carriers must be in specific class)

(l) 113.95 Classification of vessels for carrying petroleum products in bulk. Grade B - commercial gas; Grade E - Bunker "C" - diesel oils; Grade D - kerosene, solvent.

(m) 113.113 Duties of senior deck officer during transfer operations.

(n) 113.116 Deck officer to be on duty.

(o) 113.121 Responsibility for connections and operations.

SCORECARD AS OF SEPTEMBER 16, 1974

Section 125.1 of Title 35 Code of Federal Regulations:

Arrests: 62

Bails or Fines: \$12,000

Section 311 of the Federal Water Pollution Control Act  
as amended:

Owner/Operator Assessed: 14

Total civil assessment: \$17,230

PANAMA CANAL COMPANY

# POLLUTION CONTROL

IF YOUR VESSEL BECOMES INVOLVED IN AN OIL SPILL:

## STOP POLLUTION AT ITS SOURCE

INSTRUCT ENGINEER, BARGE, OR SHORE PUMPING FACILITY TO IMMEDIATELY HALT TRANSFER OF OIL

## CONTAIN OIL SPILL

### 1. ON BOARD

- A. PLUG NEARBY SCUPPERS
- B. PREVENT SPREAD OF OIL BY USE OF SAWDUST OR OTHER SORBENT

### 2. ASHORE

GIVE TERMINAL PERSONNEL ALL ASSISTANCE—BOTH MATERIAL AND LABOR—AT YOUR DISPOSAL

### 3. IN WATER

DEPLOY SPILL BOOM IF AVAILABLE ON BOARD OR ON DOCK.  
JURY-RIG BOOM IF NECESSARY.

## NOTIFY ALL PARTIES

1. Oil Spill Report Center (ACD7), Tel. 56-5191 or 56-6323.
2. Port Captain.
3. Local U.S. Coast Guard (in Continental U.S. only).

## CLEAN UP

NEW POLLUTION LAWS  
DEMAND  
REMOVAL OF POLLUTANTS.  
(do not use chemicals)

REQUEST ASSISTANCE OF LOCAL SPECIALISTS THROUGH  
REPORT CENTER, AGENT OR U.S. COAST GUARD

### IF POLLUTION IS VISIBLE IN VICINITY OF YOUR VESSEL:

1. Notify Oil Spill Report Center (ACD7), Tel. 56-5191 or 56-6323.
  2. Notify Port Captain.
  3. Attempt containment of pollutants by deploying a spillboom or jury-rig a boom from 4x4 lumber or other floating material.
  4. Ascertain the source of contamination so that you and your vessel will be fully protected.
- THESE PROCEDURES TO BE FOLLOWED EVEN IF YOUR VESSEL IS NOT THE SOURCE OF POLLUTION.

For further information contact:

PANAMA CANAL COMPANY OIL POLLUTION CONTROL OFFICE. TEL. 56-5312 or 56-5310.

IV. Wildlife and Forest Preserve Regulations

185.1

## CHAPTER 5—REGULATIONS

utive Secretary, Canal Zone Government, Balboa Heights, Canal Zone.

## PART 185—SWIMMING

Sec.

185.1 Definition.

185.2 Prescription of sanitation and health requirements as to swimming areas.

185.3 Areas in which swimming prohibited.

185.4 Exceptions in certain cases.

185.5 Dress requirements.

185.6 Penalty for violation.

AUTHORITY: §§ 185.1 to 185.5 issued under 2 C.Z.C. § 1411, 76A Stat. 48.

§ 185.1 Definition.

As used in this Part, "swimming" means any sport or recreational activity in which the body of a person comes into physical contact with water and includes, but is not limited to, surfboarding, paddle boarding, skin diving, and water skiing.

§ 185.2 Prescription of sanitation and health requirements as to swimming areas.

The Health Director shall determine the sanitation and health requirements of areas in Canal Zone waters for use in swimming. The Health Director may close, post with warning signs, or otherwise restrict the use of any such area for swimming if, in his opinion, the area does not meet the requirements of health and sanitation.

§ 185.3 Areas in which swimming prohibited.

Swimming in the following areas is prohibited:

(a) Within areas closed, posted, or restricted in accordance with § 185.2.

(b) In the Canal Zone waters within 1,000 yards of sewer outfalls of townsites.

(c) Within 100 yards of prism line of all Canal channels, including lock approaches, used by transiting vessels.

(d) In Balboa Inner Harbor or from any piers therein.

(e) In Cristobar Harbor pier area or from any piers therein.

(f) The Gatun Spillway.

(g) In the Chagres River within 500 yards below the Gatun Spillway.

(h) Above the lower edge of the concrete apron at Madden Dam and a line connecting the apron and the power station fence at Madden Dam.

(i) Within 100 feet of the shoreline of any area which has been licensed by the Canal Zone Government to a person, persons, or organization for use as a boat recreation site and which has been posted with the licensee's name and land license number. This prohibition does not apply to the licensee of the area or his guests.

(j) Within any area in which "No Swimming" signs bearing the legend: "By Order of the Governor" have been posted at the direction of the Executive Secretary.

(As amended 9/18/68 to be effective 12/8/68.)

§ 185.4 Exceptions in certain cases.

In cases affected with a public interest, and upon a showing that adequate safety precautions will be taken, the Governor may authorize, in writing, exceptions to the prohibitions imposed by § 185.3.

§ 185.5 Dress requirements.

A person may not swim in underclothing or in the nude.

§ 185.6 Penalty for violation.

As provided by 2 C.Z.C. § 1412, 76A Stat. 48, whoever violates a provision of this Part is punishable by a fine of not more than \$100 or by imprisonment in jail for not more than 30 days, or by both.

## PART 187—WILDLIFE AND FOREST PRESERVE

Sec.

187.1 Continuation of Preserve; boundaries.

187.2 Hunting or molesting of wildlife prohibited; penalty for violation.

EMERGENCY OIL POLLUTION CONTROL EQUIPMENTPacific District: (Diablo Field Office, Dredging Division)

1200 ft. boom  
 1 launch  
 3 pangas (2 without outboards)  
 1 vacuum trailer 4000-gallon capacity (call MTD for tractor)  
 1 vacuum skid rig 1,000 gallon capacity (call for core drill truck and operator Gamboa)  
 1200 lbs. of sorbent foam  
 1 Swiss Oil Skimmer OLEA II  
 1 diaphragm pump with Lister diesel  
 1 Boston Whaler  
 1 catamaran, outboard power, for quick deployment of boom anchors etc.  
 1 electric submersible pump (4"); salvage barge #3

Atlantic District: (Cristobal Field Office, Dredging Division)

1,000 ft. lightweight boom  
 1 launch  
 4 pangas (2 without outboards)  
 1 vacuum trailer, 4000-gallon capacity (call MTD for tractor)  
 1 vacuum skid rig 1,000 gallon capacity (call MTD for truck and operator)  
 1200 lbs. sorbent foam  
 1 Boston Whaler  
 1 Swiss Oil Skimmer OLEA II  
 Oil mop  
 Rehinwert Oil Skimmer  
 3 diaphragm pump 3" with Lister engine  
 1 outboard powered catamaran for quick deployment of boom  
 1 4" electric submersible pump  
 Salvage barge #1

Central District: (Gamboa, Dredging Division)

1000 ft. boom  
 1200 lbs. sorbent foam  
 1 diaphragm pump - 3"  
 Salvage Barge #2  
 2 Boston Whalers  
 1 skid-mounted, 1000 gal. vacuum unit



## PART 187—WILDLIFE AND FOREST PRESERVE

§ 187.3

187.3 Cutting down, destroying or injuring of timber or plants prohibited; penalty for violation.

AUTHORITY: §§ 187.1 to 187.3 issued under 2 C.Z.C. §§ 33, 1471, 76A Stat. 7, 49.

§ 187.1 Continuation of Preserve; boundaries.

The Canal Zone Forest and Wildlife Preserve, heretofore redesignated as such and set apart as public land, and formerly known as the "Forest Preserve", is continued. The Preserve consists of the following tract of land:

Starting at a concrete monument (Marked "A") on the Canal Zone 5-mile boundary line, in Latitude  $9^{\circ}07'+4221.0$  feet and Longitude  $79^{\circ}37'+1327.6$  feet, said monument being N  $29^{\circ}20'$  W and a distance of 144.17 feet from the intersection of the Canal Zone 5-mile boundary line and the center line of the Madden Road;

Thence S  $29^{\circ}07'34''$  W a distance of 19035.4 feet to a pipe monument (Marked "B" on the map) located in the Cattle fence, in Latitude  $9^{\circ}04'+5734.8$  feet and Longitude  $79^{\circ}35'+4582.3$  feet;

Thence following the Cattle fence in an easterly and southerly direction a distance of 9518.8 feet (through pipe monuments at all angles in the fence and through concrete monuments in the line of the fence on each side of the Madden Road) to a pipe monument (Marked "C" on the map) in Latitude  $9^{\circ}04'+2283.5$  feet and Longitude  $79^{\circ}37'+2283.4$  feet, at a point where the Cattle fence intersects the Pedro Miguel River;

Thence N  $31^{\circ}37'37''$  E a distance of 13650.6 feet, to Canal Zone 5-mile boundary monument No. 70, in Latitude

$9^{\circ}06'-1816.9$  feet and Longitude  $79^{\circ}36'+1136.4$  feet;

Thence following the Canal Zone 5-mile boundary line to Monument "A", the point of beginning.

The directions of the lines refer to the meridian.

The area of the above-described tract is approximately 3500.029 acres as shown on Canal Zone Government drawing M6101-73 dated April 22, 1931, on file in the Office of the Governor, Balboa Heights, Canal Zone.

§ 187.2 Hunting or molesting of wildlife prohibited; penalty for violation.

The hunting, injuring, or molesting of wild animals and birds and their nests in the preserve continued by § 187.1 is prohibited. As provided by 2 C.Z.C. § 1511, 76A Stat. 50, whoever violates this section shall be fined not more than \$100 or imprisoned in jail not more than 30 days, or both.

§ 187.3 Cutting down, destroying or injuring of timber or plants prohibited; penalty for violation.

The cutting down, destroying, injuring, or carrying away of any timber or plants in the preserve continued by § 187.1 is prohibited without the express authority of the Governor or his authorized representative. As provided by 6 C.Z.C. § 1502, 76A Stat. 469, whoever violates this section shall be fined not more than \$100 or imprisoned in jail for not more than 30 days, or both.

V. WILDLIFE; Hunting and Fishing  
(these are in the process of revision)

Chapter 87. Wildlife; Hunting and Fishing

SUBCHAPTER I—PROTECTION OF WILDLIFE; HUNTING

Sec.

1471. Regulations governing protection of wildlife and hunting.  
1472. Granting and revocation of hunting permits.  
1473. Hunting pursuant to permit.  
1474. Prohibited acts.

SUBCHAPTER II—FISHING

1491. Regulations governing fishing.

SUBCHAPTER III—OFFENSES AND PENALTIES

1511. Enumeration of offenses; punishment.

Subchapter I—Protection of Wildlife; Hunting

§ 1471. Regulations governing protection of wildlife and hunting

(a) The Governor shall:

(1) prescribe, and from time to time may amend, general or special regulations for the protection of wild animals and birds and their nests in the Canal Zone; and

(2) prescribe the form and manner in which wild animals and birds may be hunted in the Canal Zone, and the kinds thereof which may be hunted and which may not be molested.

(b) In the regulations issued pursuant to subsection (a) of this section, the Governor may:

(1) designate the areas of the Canal Zone in which hunting is permitted;

(2) designate the class or type of arms that may be used in hunting in the areas designated by paragraph (1) of this subsection; and

(3) impose such other conditions with respect to hunting as he deems necessary in the interests of public order and to prevent injury to persons or property. 76A Stat. 49.

HISTORY

Derivation. Based on C.Z. Code 1934, Title 2, § 291; Title 5, § 875 (July 5, 1932, ch. 418, § 4, 47 Stat. 573; July 5, 1932, ch. 420, § 1, 47 Stat. 576), as amended (Title 2, § 291) Sept. 26, 1950, ch. 1049, § 2(b), 64 Stat. 1033.

In subsec. (a), which is from section 291 of Title 2, C.Z.C. 1934, relating to birds, references to wild animals are inserted. It is not deemed that these insertions extend to the Governor any powers for the protection of wild animals which he did not already possess under the broad provisions of that part of section 875 of Title 5, C.Z.C. 1934, carried into subsec. (b) of this section, relating to regulations governing hunting generally.

Source: A Statement of the Laws of Panama in Matters Affecting Business, General Secretariat, OAS, July 1974

## XX

## FORESTRY AND WATER LEGISLATION

A. Forestry Legislation1. General Provisions

Forestry legislation in Panama is set out principally in Decree Law 39 of September 29, 1966 and in Articles 228 and 255 of the present Constitution. With respect to this subject the following should also be mentioned: Decree 94 of September 28, 1960, which defines forest reserves; Law 22 of January 23, 1962, which ratifies the agreement for the permanent establishment of a Latin American Forestry Research and Training Institute under the auspices of the United Nations Food and Agriculture Organization (FAO), and Articles 1625-1628 of the Administrative Code; Decree 153 of June 28, 1966, whereby certain lands located in the district of Capira and Chame in the Province of Panama are set aside as forest reserves; Decree 299 of August 11, 1966, establishing indemnities to be paid for damage and injury due to the destruction of fruit trees, trees which provide construction lumber, and other agricultural products; Decree 14 of January 17, 1967, by which the areas of the National Reserve included in the hydrographic basins formed by the rivers Indio, Chagres, Pequeni, Agua Clara, Gatun, and Agua Sucia are declared forest land and protective forests, and their forestry exploitation is regulated; Decree 84 of May 8, 1972, by which the sector of Alto Darien is declared a protective forest.

The present Constitution in Articles 228 and 255 provides that concessions for the exploitation of natural resources are based on social welfare and that the law shall regulate hunting, fishing and exploitation of forests, taking special care in protecting and conserving the fauna and flora of Panama.

2. Decree-law 39

Based on the above principles, Panama's forestry legislation, contained basically in Decree-law 39 of 1966, provides the following:

Protection, conservation, improvement, and further growth of forestry resources are declared obligatory, and for this purpose the exploitation and rational management of the nation's woods and forests, as well as those renewable resources that are to be included in this system by this decree-law, are declared to be of public interest and subject to the standards established in the respective regulations.

The following are declared to be of national interest and to be fundamental objectives of the state:

- a. To protect, conserve, increase, renew and exploit rationally the forestry wealth or resources of the country;

(4) commits any other act prohibited by this chapter— shall be fined not more than \$100 or imprisoned in jail not more than 30 days, or both.

(b) The penalties imposed by this section are in addition to the punishments authorized by the law against carrying arms without a permit. 76A Stat. 50.

#### HISTORY

Derivation. Based on C.Z. Code 1934, Title 2, § 293; Title 5, §§ 876, 877 (July 5, 1932, ch. 417, § 1, 47 Stat. 572; July 5, 1932, ch. 418, §§ 6, 7, 47 Stat. 574; July 5, 1932, ch. 420, § 3, 47 Stat. 576), as amended (Title 5, § 876) June 24, 1936, ch. 754, § 12, 49 Stat. 1906.

Section 293 of Title 2, C.Z.C. 1934, prescribed maximum fine of \$100, or maximum jail term of 30 days for violation of section 292 thereof (carried into par. (4) of section 1474 of this title) or of any of the regulations relating to birds issued under section 291 thereof (carried into section 1471 of this title). Both sections 876 and 877 of Title 5, C.Z.C. 1934, provided that violators of the other provisions of those sections should be "guilty of a misdemeanor", without providing specific punishment. However, section 26 of Title 5, C.Z.C. 1934, provided that, except where a different punishment was prescribed by law, the punishment for a misdemeanor should be maximum fine of \$100, or maximum jail term of 30 days, or both. These maximum punishments were the same as those prescribed by section 293 of Title 2, C.Z.C. 1934, referred to above, and this revised section follows section 293 in prescribing the maximum punishments for any of the offenses enumerated.

The provisions set out in subsec. (b) of this section, which are from section 877 of Title 5, C.Z.C. 1934, related in section 877 only to violation of one of the provisions now set out in pars. (2) and (3) of section 1474 of this title. As herein set out, this restriction is omitted as a desirable extension of the scope of this special provision.

This section, as revised, provides, by its general terms, the same punishments for violating any regulation relating to fishing, issued under section 1491 of this title, which provision is new. See derivation note under that section.

#### CROSS REFERENCES

Penalties for carrying arms without a permit, see section 2574 of Title 6.

- b. To incorporate into the national economy those lands which are not suitable for agriculture or cattle raising but which can support vegetation;
- c. To prevent and control soil erosion;
- d. To regulate and protect hydrographic basins and water sources for the better exploitation of water resources;
- e. To promote execution of reforestation projects with a view toward establishing wooded areas for the protection of crops, and the protection and beautification of roadways, sanitary works, and recreation and tourism areas;
- f. To promote in cooperation with the highway services the construction of all types of permanent or temporary roads integrated into the national road system, which will permit economic access to forest zones for exploitation;
- g. To conserve and increase the natural resources for hunting and river and lake fishing to obtain from these activities the maximum social benefit;
- h. To promote the creation of forestry associations and cooperatives;
- i. To promote the location, development and improvement of forestry industries rationally conceived, utilizing to the utmost forestry raw materials;
- j. To study, research and divulge information concerning the nature of forests and their products.

All forests and forest lands in Panama are subject to the Decree-law mentioned above.

The national government is empowered to regulate the enjoyment of rights over forests and forest lands, whether public or private property.

Forest lands are all those which because of their agrilogic capacity possess a capability to be used for production of lumber and other forestry products due to the beneficial implications or the protection of water systems and soils, to their esthetic and recreational value, or to reasons of general interest which make it advisable to have them used for agriculture or cattle raising.

Forest lands and forests are classified as follows:

- a. For production. Those which when used properly provide an annual or periodic income.
- b. For prevention of erosion. Those used for the following purposes:
  - i. To regulate water systems;
  - ii. To protect the soil and agricultural crops, cattle exploitations, roads, the shores of rivers, arroyos, lakes, islands, canals and reservoirs;
  - iii. To prevent such phenomena as erosion, avalanches and floods;
  - iv. To provide place for and protect species of the flora and fauna whose existence is declared necessary.

Special. Those which for scenic, scientific, historic, touristic, or recreational reasons are located on state lands or on lands which the state later acquires for such purposes.

The Ministry of Agriculture and Livestock is charged with classifying forest lands.

Part of Decree-law 39 concerns the general forestry system, and establishes procedures for application for concessions for exploitation of forests. Thus, plowing,

clearing, burning, and pasturing are prohibited without authorization of the Forestry Service, an agency of the Ministry of Agriculture and Livestock responsible by law for carrying out the provisions of the forestry legislation.

The sections concerning the prevention and fighting of forest fires, and control of plagues and diseases are extremely important since one of the basic problems in Panama was the lack of care given these matters and the negligence in drafting and applying laws which would prevent greater damage.

The state is not the only party obligated to prevent fires and to control plagues and diseases in plants. Individuals must also contribute in one form or another to these needs. Thus, anyone who has knowledge of a forest fire having started is obligated to communicate that fact immediately to the nearest authority.

The installation without the authorization of competent forestry authorities of establishments which may cause forest fires is prohibited within forests and in areas close to forests not wide enough to prevent the propagation of fires.

Owners, lessees, and those in charge or occupying forest areas under any title, as well as the regional and local authorities, must advise the forestry service of forest plagues and diseases immediately upon the discovery thereof.

With respect to the protection of water sources and soils, this section is directly related to the decree-law on water (Decree-law 35 of September 22, 1966) since its purpose is to protect forests which serve to protect water resources, soils, such forests being called protective forests.

Reference is made to the relationship which the forest service should maintain with the Agrarian Reform Commission so that this Commission takes into account in its plans and in its work projects the protection and conservation of water and soils, providing consistency among the agricultural -livestock and forestry plans in those places where agrarian reform work is to be developed.

Protective forests (those used for the conservation of soils and waters) may be used only for the improvement thereof. If in improving a forest its owner should lose part of his income he shall be indemnified within a period no greater than one year.

Special forests are those conserved because of their scenic, cultural and scientific value, and may not be exploited.

Exploitation forests may be exploited only after an inventory and a work plan have been approved by the Forestry Service; if government owned, they may be exploited with the prior approval of a plan by the Forestry Service.

With respect to exploitation forests, permits are granted for the following:

- a. Extraction of 1,000 tons or cubic meters from defined parcels, or from areas of up to 100 hectares of wooded land per person per year, when so requested by the producers registered in the respective registries;
- b. Exploitation of areas of up to 2,000 hectares of forests for periods up to five years, preference being given to the granting of these concessions to those producers who own industrial plants located in the forest areas;

- c. Exploitation of up to 5,000 hectares of forests by an individual or juridical person through a direct concession or private bidding, when these same persons have industries or saw mills located, or that will be located, in the production zone of such raw material.

The period is up to five years, but the Forestry Service may grant an extension for two years when reasons of force majeure or of an economic nature so justify.

- d. Concessions up to 10,000 hectares of forest for periods not to exceed 8 years, and with a possible extension of up to five years when reasons of force majeure or economic reasons so justify. These concessions must be granted through public bidding;
- e. Harvesting of forest fruits and products by poor persons, to whom limited permits shall be granted without charge.

Exploitation of forests and unclassified public lands requires the payment of a flexible tax which varies when the economic circumstances so require.

Products which the Forestry Service obtains through its own exploitations and which are not used in the improvement of its lands may be disposed of through public bidding. If quantities exceeding 400 cubic meters are involved for each exploitation, the Forestry Service will sell them directly.

The Forestry Service is charged with the control of all forestry exploitations and production. On this basis the agents of the Forestry Service have access to areas under exploitation, to extraction routes, lumber yards, and other installations.

To foment forestry exploitation, the Forestry Service is empowered to grant premiums and prizes to stimulate scientific forestry activities for the promotion and industrialization of new forestry products, and to propose to the executive branch measures facilitating equipment and the financing required therefor.

Investments in forestry plantations are deductible from the income tax.

Imports of any material used in reforestation work and research work carried out by the Forestry Service are excepted from import taxes or duties, and artificial forests on forestry lands are exempt from taxes.

The Forestry Service is responsible for compliance with the provisions of Decree-law 39 of 1966. The National Forest Commission, an honorary agency whose functions are advisory, works in collaboration with the Forestry Service.

Lastly, forestry violations and the fines to be paid therefor are established. The following are considered violations, among others:

- Failure to comply with the exploitation plans approved by the Forestry Service;
- Felling of trees, the extraction of resins, barks or fruits from forests, without authorization of the Forestry Service;
- Disobeying orders issued by the competent forestry authority in compliance with legal standards or existing regulations;
- Falsifying statements and reports;
- Causing forest fires.

### 3. Administrative Code

Paragraph 8, Chapter III, of Book 3 of the Administrative Code sets forth provisions for the protection of forests, as follows:

- a. Clearing for agricultural purposes shall be carried out under conditions appropriate to the best burning thereof and to the greatest security against setting fire to neighboring houses and tilled land.
- b. Felling out fruit trees and medicinal producing shrubs is prohibited, as is the destruction of the tree cover providing shade to water sources and small arroyos.
- c. Clearing of lands is prohibited in forests located on common lands from which the local people are accustomed to provide themselves with lumber.
- d. Setting fire to fields of straw, savannah, woods or stubble belonging to the community, for the purpose of using these, without permission from the competent authority and without first giving notice to the individuals who might be damaged by such burning is prohibited.

### B. Water Legislation

#### 1. Applicable Legal Provisions

The following is the basic water legislation in Panama:

Articles 148, paragraph 4; 226, paragraph 6; 227 and 228 of the present Constitution.

Articles 535, 536, 543 and 544 of the Civil Code.

Law 98 of 1961, creating the Institute of National Water and Sewerage Systems.

Law 45 of 1963, specifying as national reserve areas the hydrographic basins formed by the following rivers: Indio, Chagres, Pequeni, Agua Clara, Gatun, and Agua Sucia; it authorizes the Institute of Hydraulic Resources and Electrification (Instituto de Recursos Hidráulicos y Electrificación-IRHE) to make studies concerning the installation of hydroelectric plants and irrigation systems in these areas.

Decree-law 35 of September 22, 1966, which regulates the use of waters and creates the National Water Commission.

Law 31 of February 2, 1967, by which Panama extends its territorial sea to a distance of 200 miles.

Decree 187 of June 23, 1967, by which the Internal Regulations of the National Water Commission are approved.

Cabinet Decree 123 of May 8, 1969, by which certain lands in the area of the Bayano River, in the municipality of Chepo, are declared inalienable.

Cabinet Decree 235 of July 30, 1969, replacing Law 37 of January 31, 1961, organic law of the IRHE.



Decree 84 of May 8, 1972, by which the sector of Alto Darien is declared to be an erosion control sector for the purpose of preserving the hydrographic basins of incalculable value of the great rivers of that region.

Cabinet Decree 106 of June 29, 1972, replacing Article 27 of Cabinet Decree 235 of 1969.

## 2. Ownership and Utilization of Waters

The following are state owned and for public use, and therefore may not be privately appropriated: Territorial seas, lakes, and rivers, subterranean, thermal, and atmospheric waters found within the territorial limits of Panama. All these may be freely and communally used in accordance with the law. All provisions concerning waters are of public nature and social interest and cover waters intended for public use or service, those which are used in household service or for agricultural, cattle raising, industrial, communication or any other type of activity. In summary, the Constitution and the law attempt to provide the greatest common well-being in the use, conservation, exploitation and administration of waters.

With respect to territorial seas it is necessary to mention Law 31 of 1967. Article 1 of that law provides that the sovereignty of the Republic of Panama shall extend beyond its continental and insular territories and its inland waters to a territorial sea area 200 nautical miles wide, to the sea bed and to the subsoil of that zone, and to the air space above it.

## 3. National Water Authority

Decree-law 35 likewise creates the National Water Authority as an agency of the Ministry of Agriculture and Livestock. The functions of this authority are coordination and control among the various state entities which in any manner directly or indirectly participate in anything concerning waters.

Among the authority's specific functions the following stand out:

- a. Planning and programming of everything concerning appropriation, use, conservation and control of waters;
- b. Promotion of the execution of irrigation projects;
- c. Preparing and maintaining an inventory of the country's water;
- d. Preventing and controlling the pollution of river and maritime waters;
- e. Establishing measures for the protection of hydrographic basins.

Other articles of this decree-law concern the organization of the authority, its membership, jurisdiction, and the functions of the executive director.

## 4. Exploitation of Water Resources

With respect to exploitation of water resources, the right to use waters may be obtained only through concession for a profitable use. A profitable use is considered to be that which is beneficial to both the concessionaire and to the social interest.

The existing use of waters at the time this decree entered into effect is legalized through the granting of the respective permanent concession, after prior compliance with the requisites established by the present Decree-law.

When the authority considers it necessary, it orders the demarcation of zones for special processing of the exploitation of waters and sectors for irrigation, so that these may be used in the most adequate manner possible and with a view toward the public welfare.

Users are obligated to maintain waters in an unpolluted state, and if danger of pollution should arise they must take the necessary measures to correct any deficiencies.

The authority may ask for expropriation of any private work or project connected with waters. Indemnification is paid in cash or in concession rights to waters.

Any irrigation project of the state is a public utility. All persons benefited must share in the costs according to the terms and conditions established by the authority.

The water supplied by state projects must be paid for by the users thereof.

Investments shall be made by the state for the realization or improvement of state waters, but amortization is shared by the state and the users thereof.

Anyone who considers himself affected by improper use of waters in a specific zone or area may proceed to study the case and the application of the corresponding regulation. This may be done officially without any request being necessary.

The profitable uses of water that were being exercised on the date in which Decree-law 35 entered into effect are excepted.

When it becomes necessary to use, improve or eliminate an hydraulic work located on private property for carrying out a project for use of waters with public health goals, the National Water Authority will negotiate its acquisition or its expropriation in the manner established in the Judicial Code.

Properties included in the area to be benefited, but not included within the areas to be expropriated, and which prior thereto possessed rights for the profitable use of waters, shall have their rights to a proportional amount of water for irrigating a surface no smaller than that irrigated previously recognized in the new irrigation system, but in accordance with the rate or volume of water established per hectare or per crop in the benefited zone.

The water authority has exclusive control over the use of waters, and it supervises and authorizes the construction of reservoirs in river courses, the creation of artificial rain, and the use of drainage waters (Art. 28).

With respect to forest reserves and problems of erosion, the articles in forestry legislation concerning the use of waters must be taken into account (Law 39 of September 29, 1966. Art. 31).

The right to use waters or to discharge used waters may be acquired by permit, temporary concession, or permanent concession.

Rights granted for agricultural-livestock purposes are closely related to the ownership of land, so that one cannot be transferred without the other.

A permit to use waters or to discharge used waters is for one year; a temporary concession is from 3 to 5 years, and a permanent concession is, of course, of a permanent nature.

## 5. Servitudes

With respect to water servitudes or easements, the provisions of Articles 534, 537, 538, 539, 540, 541, 542, and 545 of the Civil Code are repealed, but the spirit thereof is retained. The following important points are emphasized:

- a. The right to an easement implies the necessary rights for the enjoyment thereof.
- b. Neither the owner of the servient estate nor the owner of the dominant estate may change or diminish the encumbrance of the other.

All users are obligated to keep the waters clean, especially when the water is used for domestic purposes downstream.

## 6. Fishing in Territorial Waters

The present Constitution covers this subject.

The following are state owned and for public use and therefore may not be privately appropriated: The territorial sea and the waters of lakes and rivers; the shores and banks of the same and of navigable rivers; and ports and estuaries. All such property is for the free and common benefit, subject to regulations established by law. (Art. 227.)

The law shall regulate hunting, fishing, and the exploitation of forests to ensure their renewal and the continuation of their benefits. Among these, of course, are included the country's land and sea fauna and flora. (Art. 255.)

The Fiscal Code deals with hunting and fishing in Book I, Title IV, Chapter V (Articles 285 et seq). Among the more important provisions the following should be mentioned:

- a. The executive branch is charged with the regulation of fishing for non-domesticated animal species, useful for human food or to the economy.
- b. A license is required to fish for commercial or industrial purposes. This license is not required for subsistence or sports fishing (Arts. 5 and 50 of Decree-law 17 of July 9, 1959), but a special navigation permit is required for these purposes (Art. 1057-a of the Fiscal Code, as amended by D.G. 15 of 1972).
- c. Fishing intended for sale for immediate consumption throughout Panama is reserved to Panamanian nationals.
- d. Fishing through the use of dynamite or any other explosive, or through the use of poisonous substances as well as systems which interfere with navigation or with the use of docks and ports, is prohibited.
- e. Fishing for mother-of-pearl shells is subject to a special regulation with respect to the system by which this fishing is carried out, and with respect to the license required. Thus, only diving is permitted, whether this be scuba or by mechanical apparatus, and the use of dredges, scrapers, or

any other similar apparatus is expressly prohibited. Even the mechanical type of diver equipment is not permitted in waters of less than 8 fathoms at the lowest tide.

- f. The capture of common turtles of less than 50 centimeters in length and of tortoise shell turtles of less than 25 centimeters in length is prohibited.

Fishing in rivers, estuaries, and lakes which border on cultivated lands or which if navigable cross through such lands, or fishing from the banks and shores of these places and from uncultivated lands is covered by Articles 5 et seq. of Decree-law 17 of 1969.

Any violation of the provisions set out or of the decrees regulating fishing is heavily penalized by law, from a fine up to the confiscation of the vessel in case of a repeated violation. (Art. 297, Fiscal Code.)

a. Regulation. Decree-law 17 of July 9, 1959 regulates fishing and exploitation of fish products throughout Panama. Chapter 1 sets out definitions and general provisions concerning the fishing industry, fishing resources, fishermen, fishing enterprises, conservation of fish resources, protection, shores and beaches.

Fishing is classified as follows (Art. 4):

Subsistence fishing. The primary purpose of this fishing is food for the fishermen's families and neighbors, provided this is equivalent to the wages of a farmer. This fishing is done with a casting net, a harpoon, or a fishing line with a maximum of three hooks whose use is not for sport.

Commercial. Its purpose is to provide the national market with fresh and dried fish.

Industrial. That which is carried out for export or for the purpose of submitting the product to industrial processing.

Scientific. That which is carried out only for purposes of research and study.

Sport. That which is done for recreation or exercise without any other purpose than the activity itself.

All natural and juridical persons have a right to engage in fishing, providing it is for a legal purpose and that they have a fishing license when such is required by law. This right may not be exercised in those places dedicated to the scientific study of pisciculture.

No alien not domiciled in Panama shall be issued a fishing license to engage in the fishing industry for shrimp, pearls or mother-of-pearl.

The Ministry of Commerce and Industries is charged with the regulation and control of fishing in territorial waters, the granting of fishing licenses, and temporary and permanent navigation permits (Art. 12).

To meet these objectives the Department of Fish and Related Industries and the National Fishing Laboratory are created within the Ministry of Commerce and Industries. The National Fishing Commission is established as an advisory agency, restructured by Cabinet Decree 368 of November 26, 1969.

There are general and special prohibitions concerning fishing. The general prohibitions are (Arts. 29, 30):

- No explosives;
- No explosive substances or those poisonous to aquatic life, to domestic animals and to humans;
- No methods which pollute the waters, changing their quality for human use, for domestic animals or for irrigation;
- No methods which interfere with navigation, use of ports and docks, passages in rivers, and other public ways;
- No practices that upset the natural laws;
- No act of unnecessary cruelty toward aquatic animals.

Special prohibitions are all the others established by Decree-law 17 and other regulatory decrees providing for prohibited periods, prohibited zones, minimum and maximum size of vessels, and number of vessels (Arts. 32, 33).

With respect to fishing vessels, Chapter IV of Decree-law 17 classifies as follows:

Ocean vessels. Net registered tonnage of 100 tons or more;

High-seas vessels. 10 tons or more without reaching the category of ocean vessels;

Low-seas vessels. Under 10 tons but not fitting into the category of minor or smaller vessels;

Smaller vessels. Those whose means of propulsion is normally only oars or paddles, even though they may have sails and a motor.

Because in Panama the fishing industry is an important source of employment which strengthens the national economy, it represents an appreciable item in the country's exports, and fundamentally shrimp fishing is an industry which must be protected and developed commercially and scientifically, legislation on this subject is extensive and detailed. We shall mention only what are considered the most important. In addition to Decree-law 17 of July 9, 1959, the following important legislation is mentioned:

- Law 33 of January 30, 1961, establishing measures of an economic nature for regulating and protecting fishing in Panamanian waters, and especially the taking and processing of shrimp;
- Decree 40 of June 7, 1961;
- Decree 42 of January 24, 1965, which regulates fishing throughout Panama;
- Decree 49 of March 12, 1965;
- Decree 162 of June 6, 1966;
- Decree 168 of July 20, 1966;
- Law 5 of January 17, 1967, establishing measures of an economic nature for carrying out research to orient and protect fishing in Panamanian waters; also regulating the issuance of fishing and sailing permits, and the inspection of fishing vessels;
- Decree 13 of January 17, 1967, prohibiting shrimping vessels over 20 gross tons which do not have a fishing license or which have not submitted a request for the renewal thereof and the sale of marine products caught by them (amending Decree-law 17 of 1969).

Applications for fishing licenses are made according to Article 5 of Decree 30 of December 22, 1952 and the provisions of Article 1 of Decree-law 40 of June 7, 1961. The crews and representatives of these ships may not sell any fish product within the jurisdictional waters of Panama or in local markets without the prior approval of the Ministry of Commerce and Industries.

Existing provisions of a more general nature concerning fishing and navigation should also be cited, among them, the following:

Decree 202 of October 14, 1965, by which the catching of any marine species is prohibited within an area of 12 miles from the coast. This has been revised in turn by Decree 210 of October 25, 1965;

Decree 14 of February 15, 1967 (load water line of vessels);

Decree 20 of March 7, 1967, which sets out measures concerning private recreational, sport or pleasure yachts;

Decree 124 of August 24, 1967 (complementing Decree 14 of 1967);

Decree 3 of July 23, 1969, regulating the issuance of Certificates of Origin for exports of fish caught on the high seas by fishing vessels of Panamanian registry;

Cabinet Decree 368 of November 26, 1969, revising Articles 20, 21, 22 and 23 of Decree-law 17 of 1959 (with respect to the National Fishing Commission);

Cabinet Decree 15 of January 27, 1972, which adds Title XVIII to Book IV of the Fiscal Code, entitled "Tax on Navigation in Jurisdictional Waters".

Special navigation permit. Cabinet Decree 15, in addition to creating this tax, deals with other measures such as the following:

- Launches, yachts, or motor boats engaged in sport or recreational fishing in Panamanian jurisdictional waters must carry on board a special navigation permit, issued by the Consular and Vessels Bureau of the Ministry of Finance and Treasury at the request of the interested party, presented on sealed paper.

This navigation permit is valid for the period requested by the interested party, but in no case longer than six months.

- Foreign vessels which arrive at unqualified ports and those which engage in commercial activities within jurisdictional waters must carry aboard a special navigation permit issued by the Consular and Vessels Bureau of the Ministry of Finance and Treasury. This permit will not exempt the vessel from the obligation of obtaining the docking or sailing permits required by law.

In such permit, the necessary customs inspectors are assigned for the sole account of the interested parties, in accordance with Executive Decree 332 of June 17, 1943.

Navigation in jurisdictional waters without the permit mentioned in the above paragraphs is punished by a fine of not less than five times nor greater than ten times the value of the navigation permit, according to the type of activity. A recurrence is punished also by the definitive confiscation of the vessel.

In both cases the ship's captain or the individual in command of the ship at the moment of its capture will be arrested until the penalties are paid.

Without the corresponding permission of the Ministry of Finance and Treasury, engaging in the commercial activities set out in Article 431 of the Fiscal Code between an unqualified port and any other port or free zone established in Panama is prohibited. The commercial activities set out in Article 431 of the Fiscal Code engaged in between a port or free zone and the rest of the republic are subject to the customs regulations set out in Book IV of the Fiscal Code.

## 7. The Institute of Hydraulic Resources and Electrification

Law 37 of 1961, which was the organic law for this Institute, has been completely repealed by Cabinet Decree 235 of July 30, 1969. This Cabinet Decree maintains this agency as a state institution with juridical personality, its own patrimony and autonomy in its internal operations.

In accordance with Cabinet Decree 235, the Institute's objectives are to plan, increase, diversify and rationalize the generation, transmission, and distribution of electrical energy throughout the republic. As a result it has the following functions and powers:

- a. To obtain or generate sufficient electric power throughout the country to satisfy present and future demands of the rural and urban communities, as well as to promote the development of new industries;
- b. To contribute to the conservation, development and utilization of hydraulic resources throughout the republic;
- c. To construct, install and operate all the additional sources of electric power generation required for public use throughout the republic, using any method of production for this purpose.

Therefore, the Institute is charged with the construction and operation of all new sources of electric power generation required for its own electrification plans as well as for supplying the power requirements of the concessionary enterprises of the state, or of the municipalities which operate or provide public electric power service in the urban, suburban or rural areas.

- d. To plan, design, construct, operate, administer, or improve the generation, transmission and distribution systems for electrical energy which it owns;
- e. To study, prepare, and maintain up-to-date inventories and statistics on hydroelectric facilities and resources for the supply of electric power in the country, and to study the present and future requirements of electric power demand; to prepare and periodically update the national electrification plan in accordance with the general development policy of the national government.

All private electric public utility enterprises must submit to the Institute at least three years in advance their requirements for future energy and power, and data on generation, consumption, and market demand, for the Institute's study and for inclusion in the national electrification plans and works.

- f. To establish tariffs for electric power service it provides partially or totally to individual or public users and to concessionaires of the state or to the municipalities, basing these tariffs on the principles and procedures used by public utility enterprises;
- g. To advise the state, municipalities, and autonomous or semiautonomous state entities with respect to projects which directly or indirectly r

- the use of electric power for their development or execution, or in the negotiation of international agreements concerning electricity;
- h. To enter into contracts or loans with international agencies or national agencies of another state. Approval by the executive branch is necessary when such contracts or loans require the joint and several guarantee of the state;
  - i. To review, prior to approval by the corresponding authority, the internal installation plans for electrical lighting systems in public and private buildings under construction, expansion or repair, in those areas in which the Institute distributes electric power;
  - j. To perform such other functions as may be assigned to it by law and within the general features established in the national electrification plan.

The Institute has preference in the execution of electrification plans and in the exploitation of national hydroelectric resources. Any expropriation of properties, servitudes and hydraulic sources which the Institute needs for the fulfillment of the purposes established in Cabinet Decree 235 are of public utility and social interest.

The expropriations referred to herein are decreed by the executive branch.

The following is complementary legislation of importance issued after Cabinet Decree 235: Cabinet Decree 215 of June 26, 1970, by which the Institute of Hydraulic Resources and Electrification is subjected to the regulation system set out in Decree-law 31 of September 27, 1958, and some provisions of that Decree-law and of Cabinet Decree 235 of 1969 are amended or repealed; Cabinet Decree 216 of June 26, 1970, which provides that IRHE in its public service activities shall be subject to control by the Electric Power Commission pursuant to the powers assigned to that Commission in Cabinet Decree 216 mentioned above; Cabinet Decree 105 of June 29, 1972, by which the nation is authorized to acquire all properties and installations of the Panamanian Light and Power Company, and these are transferred to the patrimony of IRHE, which is charged thereafter with the exploitation of the public services that the above-mentioned company was providing throughout the republic; Cabinet Decree 106 of June 29, 1972, amending Article 26 and repealing Article 27 of Cabinet Decree 235 of 1969. Article 26 refers to the special procedures for contracting materials, works or services by the Institute, and Article 27 concerns the legal standards which control labor relations between the officials and employees of IRHE and IRHE as the employer upon the transfer to that Institute of the properties, installations and services of the former power and light company; Cabinet Decree 107 of June 29, 1972, amending some provisions of Decree-law 31 of September 27, 1958 referring to the electric power industry.

#### 8. Institute of National Water and Sewerage Systems

This Institute is an autonomous government agency for the control of all activities related to public or private potable water and sewerage collection, treatment and disposal systems.

Law 98 of 1961 continues to be the basic legislation for this Institute, but Decree 740 and Decree 741 of November 2, 1966, provide additional legislation. Decree 740 provides measures with respect to connections to sewerage systems, and Decree 741 provides regulatory measures for the sanitary code and for laws on leasing, housing, and urbanism. Also Law 19 of January 30, 1967 amends Article 9 of Law 98 with respect to requirements to be an executive director of that entity; Law 33 of February 2, 1967 increases the powers of the Institute of National Water



and Sewerage Systems to contract loans for increasing or expanding its program of construction of water systems in rural communities in the country; and Cabinet Decree 81 of April 25, 1972 empowers a national subsidiary of this Institute to finance the local contribution for the new water supply system project for Panama City, in view of the urgent need of increasing the water supply due to the growth and expansion of that city.

Its principal functions are: (a) to plan, study, design, direct, construct, inspect, operate, maintain, and exploit the water and sewerage systems of the country; (b) to prepare or authorize the preparation of all plans for public works of autonomous agencies insofar as water and sewerage systems are concerned, in accordance with municipal legislation in force and the Sanitary Code. It also approves plans for private works for the same purpose, after due study and in accordance with its own standards; (c) to set up, determine, fix, change, levy and charge reasonable rates, taxes, rents, valuation, and other fees for the use or installation of its facilities, water and sewerage services, or other articles or services lent or supplied by it (Arts. 1 - 5 of Law 98).

VII. Proteccion a la Fauna Silvestre Panameña

PROTECCION  
A LA FAUNA  
SILVESTRE  
PANAMEÑA



MINISTERIO DE AGRICULTURA, COMERCIO E INDUSTRIAS

Panamá, R. P.

El Órgano Ejecutivo a través del Ministerio de Agricultura, Comercio e Industrias dictó el siguiente decreto mediante el cual se señalan disposiciones para conservar la fauna silvestre en todo el territorio de la República.

El importante decreto es del tenor siguiente:

DECRETO No. 23  
(de 30 de Enero de 1967)  
Por el cual se dictan medidas de carácter urgente para la protección y conservación de la FAUNA SILVESTRE.

El Presidente de la República,

en uso de las facultades que se derivan del Artículo 237 de la Constitución Nacional; del Decreto Ley No. 59 de 29 de septiembre de 1966 que establece la Legislación Forestal de la República; de los artículos 347 y 348 del Código Civil; de los artículos 254 y 235 del Código Fiscal; de la Ley 66 de 1947 (Código Sanitario); de las disposiciones del Código Administrativo y de los Decretos Ejecutivos Nos. 564 y 823 de los años 1948 y 1961 respectivamente,

CONSIDERANDO:

1o.—Que la protección y conservación de la Fauna Silvestre es de interés público y los animales bravos o salvajes son riquezas naturales pertenecientes al Estado;

2o.—Que por Decreto Ejecutivo No. 218, de Agosto de 1966, se nombró una Comisión de Trabajo para el estudio y establecimiento de normas destinadas a reemplazar la caza y la conservación de la Fauna Silvestre;

3o.—Que en el estudio preliminar que realiza dicha Comisión de Trabajo se reconoce, con carácter de urgencia, la protección inmediata de determinadas especies que están en peligro de desaparecer;

4o.—Que es deber del Gobierno Nacional tomar todas las medidas conducentes para restringir el uso de armas, municiones y explosivos, a fin de proteger la Fauna Silvestre;

5o.—Que a pesar de que la Ley prohíbe la caza y la pesca con fines comerciales, o industriales, o por deporte, aún haber obtenido la licencia correspondiente, se viola frecuentemente esta disposición, así como las normas establecidas en el Código Sanitario en la venta y expendio de animales silvestres.

DECRETA:

#### I.—MEDIDAS URGENTES DE PROTECCION:

Artículo 1o.—Con el propósito de conservar, restaurar y proteger o determinar especies de animales silvestres útiles al hombre, que están en peligro inmediato de desaparecer, SE PROHIBE en forma absoluta y terminante la caza dentro de todo el territorio nacional por el término que señale la Comisión Nacional de la Fauna Silvestre, y a partir de la fecha de promulgación de este Decreto, de las siguientes especies:

1. VENADO BLANCO (HEMERA Y SUS CRIAS) *Odocoileus virginianus*.
2. CORZO (HEMERA Y SUS CRIAS) —*Macama americana*.

3. TAPIR O MACHO DE MONTE — *Tapirus bairdii*.

4. CONEJO PINTADO — *Agouti paca*.

5. PERDIZ DE RASTROJO — *Crypturellus soui*.

6. PERDIZ DE ARCA — *Tinamus major*.

7. PAVON (PAVO Y RUBIA) — *Craz rubra*.

8. PAVA CIMBA O ROJA — *Penelope purpurascens*.

9. PAVA NEGRA O NORTEÑA — *Chamaspetes unicolor*.

10. GUICHICHE — *Dendrocygna autumnalis*.

11. PATO REAL — *Cairina moschata*.

12. CUENTZAL — *Pharomachrus mocinno*.

13. AGUILA HARPIA — *Harpia harpyja*.

14. MANATI — *Trichechus manatus*.

15. TORTUGA VERDE — *Chelonia mydas*.

16. RANA DORADA — *Ateolopus zeteki*.

Artículo 2º.—Con el propósito de proteger parcialmente a la iguana, se prohíbe su caza con fines comerciales y se establece una época de veda a partir del 1º de diciembre de cada año hasta el 1º de mayo del año siguiente. Los Alcaldes, Corregidores, Regidores, Comisarios y miembros de la Guardia Nacional especialmente, así como

todos los funcionarios miembros de las Comisiones de Protección de la Fauna Silvestre que más adelante se nombren, están obligados a decomisar todas las iguanas vivas en venta, sea cualquiera el lugar donde se encuentren. El funcionario que efectúe el decomiso, acompañado por un miembro de la Guardia Nacional, visitará inmediatamente a la Autoridad Administrativa del lugar y procederá en el menor tiempo posible a soltar todas las iguanas en lugares apropiados para su propagación y abrigo, y tomará además, todas las medidas pertinentes para impedir sean capturadas de nuevo.

Artículo 3º. Quedan igualmente prohibidos los siguientes métodos o sistemas de pesca en ríos, arroyos, lagos y estanques en cualquier sitio del territorio nacional:

1.—Por medio de explosivos o de sustancias venenosas, tales como dinamita, cal, cianuro, etc., o sustancias tóxicas de cualquier origen que produzcan la muerte o el aturdimiento de los peces y demás especies de la fauna acuática.

2.—La pesca con estacas o redes que cubran el cauce total de las corrientes; la pesca con armas de fuego y la pesca nocturna con lámparas o luz artificial.

Los funcionarios de las Comisiones de Protección de la Fauna Silvestre tomarán, en cuanto a la pesca, las mismas medidas señaladas para la conservación de la Fauna Silvestre y las establecidas en el Decreto Ley No. 17 de 9 de julio de 1959 que regula esta materia.

## II.- ORGANIZACIÓN

Artículo 4o.—Con el objeto de que la prohibición absoluta establecida en el Artículo Primero sea cumplida, se crean las siguientes Comisiones de Protección de la FAUNA SILVESTRE, como entidades de consulta, vigilancia y cooperación entre el Estado y los particulares:

a) La Comisión Nacional de Protección de la Fauna Silvestre que funcionará como una dependencia del Ministerio de Agricultura, Comercio e Industrias y trabajará coordinadamente con el Servicio Forestal, estará formada por el Ministro del Ranto o su representante, quien la presidirá; el Ministro de Gobierno y Justicia o su representante; el Procurador General de la Nación o su representante; el Ministro de Trabajo, Previsión Social y Salud Pública o su representante; el Comandante en Jefe de la Guardia Nacional o su representante; el Director del Departamento de Promoción y Desarrollo del IPAT y por la Comisión de Trabajo, creada por el Decreto No. 218 de 25 de agosto de 1963, señores:

Lic. William Newman, en representación de la caza deportiva,

Lic. Juan Aparicio P., por el Consejo Nacional de Economía,

Ing. Ricardo M. Gutiérrez, Dasonomo del Servicio Forestal,

Dr. Horacio Luffin, Biólogo de la Universidad del Estado de Florida,

Sr. Louis Martinz, Presi-

dente del Comité para la Conservación de los Recursos Naturales de Panamá,

Doctor Eustorgio Méndez, Zoológico de la Escuela de Biología de la Universidad de Panamá,

Dr. Martin Moyuiban, Director del Instituto Smithsonian de Investigación Tropical,

Ing. Edwin Schmeisser, Asesor Forestal de la FAO,

Ing. Rebledo Landero, Representante de la Comisión de Reforma Agraria,

Lic. Juan L. de Obarno, Director del Departamento de Pesca,

Dr. Luis Howell R., Asesor en Biología UNESCO,

Lic. Eufas Sánchez, Asesor Legal del Ministerio de Agricultura, Comercio e Industrias,

Sr. Jorge Carrasco, en representación de la pesca deportiva

b) Las Comisiones Provinciales de Protección de la Fauna Silvestre, en las cabeceras de las 9 provincias y que estarán formadas por el Gobernador de la Provincia, quien la presidirá; el Alcalde del Distrito Cabecera; el Oficial de la Guardia Nacional de más alta graduación en la Provincia, el Jefe de la Comisión de Reforma Agraria de la Provincia; un empleado del Ministerio de Agricultura, Comercio e Industrias que designe el Ministro; el Fiscal Principal del Circuito y dos ciudadanos que serán designados por el Gobernador de la Provincia.

c) Las Comisiones Municipales de Protección de la FAUNA SILVESTRE en todos los Distritos de la República y que estarán formadas por el Alcalde del Distrito, quien la presidirá; el Fiscal del Circuito o el Personero Municipal según el caso; el Presidente del Consejo Municipal; los Corregidores del Distrito; un miembro de la Guardia Nacional y dos ciudadanos nombrados por el Alcalde del Distrito.

**PARAGRAFO:** Los cargos de miembros de las Comisiones de Protección de la FAUNA SILVESTRE serán desempeñados Ad-Honorem y con excepción de los ciudadanos particulares que se nombren, todos los otros cargos son de forzosa aceptación y los funcionarios públicos mencionados están obligados a servirlo. Tan pronto este Decreto entre en vigencia, los Presidentes de Comisiones estarán en la obligación de citar a todos los miembros con el propósito de instalar la Comisión. El Gobernador o el Alcalde que deba presidir la Comisión, instalará ésta, con las personas que concurren y dejará constancia de acta, de aquellos miembros que no se presentaron sin causa o excusa que lo justifique. Los Secretarios de la Gobernación o del Distrito, según el caso, fungirán de Secretario de las Comisiones.

**Artículo 50.—Serán funciones de las Comisiones de Protección de la FAUNA SILVESTRE:**

a) La Comisión Nacional, coordinará una campaña nacional de protección de las especies señaladas en el Artículo 10., así como de otras especies; dictará resoluciones pertinentes con ese fin;

encará representantes a las comisiones Provinciales y Municipales; elaborará un reglamento de trabajo; resolverá las consultas que le formulen las Comisiones Provinciales o Municipales; llevará a cabo una labor de vigilancia y cooperación en toda el territorio nacional; deberá informar directamente al Presidente de la República por escrito, la labor que realice, en forma periódica; y las demás que en el futuro leija a bien establecer para la protección de la Fauna Silvestre.

b) La Comisión Provincial coordinará una campaña dentro de la Provincia y citará a los miembros de las Comisiones Municipales especialmente a los Alcaldes de todos los Distritos, con el fin de tomar las medidas pertinentes para prohibir la caza de las especies señaladas en el Artículo 10.; dará cumplimiento a las resoluciones emitidas por la Comisión Nacional; dictará las resoluciones que deban cumplir las Comisiones Municipales; solicitará como medio de divulgación la cooperación de los Inspectores, Directores y Maestros del ramo de Educación; y las demás funciones que en el futuro le señale la Comisión Nacional. La Comisión Provincial estará obligada a reunirse el primer lunes de cada mes y enviará a la Comisión Nacional copia del Acta de dicha reunión, así como toda la información que ésta solicite.

c) La Comisión Municipal deberá citar a todos los Corregidores, Regidores y Comisarios con el propósito de dar cumplimiento a la prohibición de la caza de las especies señaladas en el Artículo 10.; y tomará todas las

medidas pertinentes para hacer conocer de las particulares el texto de este Decreto; el Alcalde del Distrito respectivo, el Corregidor, Regidor o Comisario según el caso, citarán a su despacho dentro de su circunscripción, a todas las personas que notoriamente se dedican a cazar animales silvestres, con el propósito de advertirles de esta prohibición, además notificará por Secretaría a todos los propietarios de tierras, dentro de su Distrito, que están en el deber de prohibir la caza en sus respectivos predios, de las especies señaladas en el Artículo 1o.

La Comisión Municipal deberá reunirse el primer viernes de cada mes y enviará a la Comisión Provincial copia del Acta de la reunión y toda información que ésta le solicite.

**PARAGRAFO:** Corresponderá a todos los Alcaldes y Corregidores de los Distritos y sus respectivos corregimientos en toda la República, aplicar las sanciones que más adelante se establecen en forma detallada. Los Gobernadores y los Alcaldes, según el caso, conocerán en segunda instancia de estos asuntos.

### III—MEDIDAS DE CONTROL SANITARIO

**Artículo 6o.**—En atención a las medidas de protección de la Fauna Silvestre y Acuática contempladas en este Decreto y a las disposiciones señaladas en el ordinal 3o. del Artículo 90 y el ordinal 5o. del Artículo 186 de la Ley 66 de 10 de noviembre de 1947 (Código Sanitario) se prohíbe en forma absoluta el expendio de carne de animales silvestres, cualquiera

sea su especie, en todo el territorio nacional. Con el propósito de aplicar inmediatamente esta norma prohibitiva, los señores Alcaldes de los Distritos de Panamá y Colón y los funcionarios del Departamento de Salud Pública, ordenarán el cierre inmediato de los locales del Mercado Público de ambas ciudades que se dedican al expendio de carne de animales silvestres. Sólo si los dueños de los respectivos locales se comprometen por escrito a dedicarse a la venta de otros artículos, el Alcalde del Distrito podrá permitir su operación.

**Artículo 7o.**—Los Inspectores del Departamento de Salud Pública tendrán la obligación de vigilar y tomar todas las medidas adecuadas para impedir el expendio o venta de carne de animales silvestres, tanto en el Mercado Público, Mercados Particulares, Super Mercados y en las casas de cazadores profesionales, que así lo hacen, en algunos lugares y caseríos del interior de la República. Estas atribuciones también corresponden a los Alcaldes, Corregidores, miembros de la Guardia Nacional y demás funcionarios de las Comisiones de Protección de la Fauna Silvestre.

**Artículo 8o.**—Toda la carne de animales silvestres, que se comprueba está en expendio o venta para el público, será decomisada y entregada por orden de la Autoridad Administrativa correspondiente, a los asilos, hospitales, orfanatos, etc., si los hubiere y si no, a las personas pobres del lugar siempre que su aptitud para el consumo humano sea comprobada por un inspector sanitario. Esta disposición también es apli-

cable a los animales silvestres vivos que se encuentran en venta sea cualquiera su especie y que serán entregados a las Autoridades Administrativas quienes los cuidarán hasta tanto la Comisión de Protección de la Fauna Silvestre respectiva decida el asunto. El Alcalde del Distrito de Chepo establecerá, conjuntamente con la Guardia Nacional, medidas de vigilancia y control en el Puerto de La Capitana sobre el río Mamoni, para hacer cumplir este Decreto, así como en la carretera que conduce a El Llano.

#### IV—MEDIDAS DE RESTRICION SOBRE EL USO DE ARMAS, MUNICIONES Y EXPLOSIVOS:

Artículo 90.—En virtud de que la Legislación vigente sobre uso de armas, municiones y explosivos; restricción sobre importación y venta de los mismos y permiso para dedicarse a la cacería establece una regulación completa sobre la materia; se exhorta al Ministro de Gobierno y Justicia, al Procurador General de la Nación y al Comandante en Jefe de la Guardia Nacional, para que hagan cumplir el Decreto Ejecutivo No. 554 de 29 de diciembre de 1943; el Decreto No. 823 de 19 de junio de 1951 que modifica el anterior; los artículos 929, 1624-A y 1624-B del Código Administrativo; y el Artículo 442 del Código Fiscal.

La Comisión Nacional de Protección de la Fauna Silvestre por intermedio del Ministerio de Agricultura, Comercio e Industrias, darán publicidad a través de un folleto, del presente Decreto, y complementarán su publica-

ción con toda la legislación anteriormente citada, con el propósito de hacerla llegar a todos los funcionarios públicos encargados de cumplir y hacerla cumplir.

#### V—DE LAS FALTAS Y SANCIONES:

Artículo 10.—Las infracciones de este Decreto serán penadas en primera instancia, por el Corregidor o el Alcalde según el caso, del lugar donde haya ocurrido el hecho ilícito y en segunda instancia, por el Alcalde o el Gobernador de conformidad con la Autoridad que ha conocido de la primera instancia. Se impondrá una multa o su equivalente en arrendo por cada animal que se capture, acose o dé muerte por cualquier medio, o la persona o personas que hayan participado en su captura o muerte en la siguiente forma:

VENADO BLANCO (Hembra o sus crías) Diez Balboas (B.10.00);

CORZO (Hembra o sus crías) Diez Balboas (B.10.00);

TAPIR O MACHO DE MONTE, Veinte Balboas (B.20.00);

CONEJO PINTADO, Diez Balboas (B.10.00);

PÉRDIZ DE BASTROJO, Dos Balboas (B.2.00);

PERDIZ DE ARCA, Tres Balboas (B.3.00);

PAVON, Cinco Balboas (B.5.00);

PAVA CIMBA O ROJA, Tres Balboas (B.3.00);

PAVA NEGRA O NORTEÑA, Cinco Balboas (B.5.00);

GUICHICHE, Cinco Balboas (B.5.00);



**PATO RUMI,** Cinco Balboas (B.5.00);

**QUETZAL,** Cincuenta Balboas (B.50.00);

**AGUILA HAEPIA,** Diez Balboas (B.10.00);

**MANAPI,** Cincuenta Balboas (B.50.00);

**TORTUGA VERDE,** Cincuenta Balboas (B.50.00);

**RANA DORADA,** Cinco Balboas (B.5.00).

En caso de reincidencia, la multa se duplicará y se procederá al decomiso de las armas, municiones, explosivos pólveros, fulminante e instrumentos usados en su captura o muerte, así como de los piezas capturadas y/o muertas.

**PABAGRAFO:** Los funcionarios públicos que más adelante se mencionan, tomarán además, medidas esenciales para evitar e impedir la captura o muerte de algunas especies que sólo se encuentran en determinados lugares en la forma siguiente:

Artículo 11.— El Comandante en Jefe de la Guardia Nacional en su carácter de miembro de la Comisión Nacional para la Protección de la Fauna Silvestre, ordenará a todos sus subordinados, que decomisen inmediatamente todos los animales vivos o muertos específicamente señalados en el artículo anterior; que se compruebe hayan sido recientemente capturados o muertos; tomen los nombres, dirección y generalidad de la persona o personas que los tengan en su poder y los darán cita y hora para que en su oportunidad comparezcan ante la autoridad Ad-

ministrativa correspondiente. En caso de no comparecer a la cita previamente acordada, el Corregidor o el Alcalde ordenará su arresto por desacato.

La Comisión Nacional de Protección de la Fauna Silvestre entregará a la Comandancia de la Guardia Nacional una serie de folletos instructivos referentes a los animales cuya caza está terminantemente prohibida, para que todos los miembros de la Guardia Nacional en el país actúen con pleno conocimiento de las especies que por este Decreto se prohíben y realicen además una labor de divulgación entre los vecinos del lugar y donde presion sus servicios, para que no se les capture, acote o dé muerte.

Artículo 12.— A todos los infractores del Artículo 3o., de este Decreto sobre los prohibidos de los animales y la fauna de pesca en ríos, arroyos, lagos y esteros, se les impondrá una multa de Veinticinco Balboas (B.25.00), o su equivalente en arresto, y se procederá al decomiso de los útiles o instrumentos usados en el hecho ilícito, así como todo el producto de la pesca.

Artículo 13.— Las sumas recaudadas en concepto de multas, que haya lugar a imponer conforme a este Decreto, ingresarán al Tesoro Municipal del Distrito respectivo y la recaudación se hará efectiva por el Tesorero Municipal.

Artículo 14.— Las Comisiones de Protección de la Fauna Silvestre en todo el territorio nacional colaborarán además, mediante de vigilancia y cooperación con

Las Autoridades Administrativas y funcionarios de la Reforma Agraria, con la finalidad de que se cumpla con los Artículos 173 y siguientes del Código Agrario sobre la práctica de las quemas, con la finalidad de proteger los bosques que son el hábitat natural de la Fauna Silvestre.

Artículo 15.—El Ministerio de Agricultura, Comercio e Industrias podrá extender permisos especiales para la captura de animales silvestres, requeridos para trabajos científicos, oído el parecer de la Comisión Nacional de Protección de la Fauna Silvestre, quien establecerá las condiciones en que se puede realizar dicha captura.

Artículo 16.—Los funcionarios públicos que se negaren a dar cumplimiento a este Decreto, podrán ser penados con multas de Diez Balboas (B.10.00) a Cincuenta Balboas (B.50.00) en cada caso. Esta multa será impuesta por el Gobernador de la Provincia si se tratare de

funcionarios dependientes de él o de los Municipios; y por sus respectivos superiores si se tratare de funcionarios de otro orden.

Artículo 17.—Se cancela acción popular para denunciar a los contraventores de este Decreto. Los denunciadores tendrán derecho al 25% de la multa que se imponga al contraventor pero aquellos a quienes se declare falsos denunciadores, serán puestos a ordenes del funcionario competente del Ministerio Público para que inicie las correspondientes sumarias.

Artículo 18.—Este Decreto comenzará a regir desde la fecha de su publicación en la Gaceta Oficial.

Comuníquese y publíquese.

Dado en la Ciudad de Panamá a los 30 días del mes de enero de mil novecientos sesenta y siete.

MARCO A. ROBLES.

El Ministro de Agricultura, Comercio e Industrias,  
*Rubén D. Carles Jr.*

## HISTORY

Derivation. Based on C.Z. Code 1934, Title 2, § 292; Title 5, §§ 875, 877 (July 5, 1932, ch. 417, § 1, 47 Stat. 572; July 5, 1932, ch. 418, § 4, 47 Stat. 573; July 5, 1932, ch. 420, § 2, 47 Stat. 576).

Section consolidates section 292 of Title 2, C.Z.C. 1934; and part of the second sentence of section 875, and all of section 877, of Title 5, C.Z.C. 1934, except the punishment provisions of section 877. Remainder of section 875 is carried into sections 1471 and 1473 of this title, and the punishment provisions of section 877 are carried into section 1511 of this title.

In par. (2), words "at night", which followed "Hunt" are omitted as unnecessary, considering the words "between the hours of sunset and sunrise" which follow thereafter; and reference to "lantern, torch, bonfire" is omitted as covered by "artificial light".

At the end of par. (4), which is derived from section 292 of Title 2, C.Z.C. 1934, words ", within the Canal Zone" are omitted as surplusage, since this section and the regulations issued under this chapter could have application only in the Canal Zone.

## CROSS REFERENCES

Penalties, see section 1511 of this title.

## Subchapter II—Fishing

## § 1491. Regulations governing fishing

The Governor may prescribe, and from time to time amend, regulations governing fishing in the Canal Zone. 76A Stat. 50.

## HISTORY

Derivation. Section is new, and is inserted to give the Governor the necessary statutory authority to regulate fishing in the Canal Zone. Regulations on fishing issued by the Governor in the past have not had the force and effect of law, and legislation on the subject is recommended by local police officials, who report that there has been an increasing number of violations of the regulations. Therefore, in addition to the insertion of this section, the punishment provisions of section 1511 of this title are extended to cover violations of regulations issued under this section.

## CROSS REFERENCES

Publication of regulations under this section, see section 1541(b) of this title.

## Subchapter III—Offenses and Penalties

## § 1511. Enumeration of offenses; punishment

## (a) Whoever:

(1) engages in hunting without first obtaining the permit provided for by this chapter; or

(2) after obtaining a hunting permit, engages in hunting in violation of this chapter; or

(3) violates a regulation issued by the Governor pursuant to this chapter; or

For the purpose of clarification, words "or type" are inserted after "class" in subsec. (b)(2).

#### CROSS REFERENCES

Permits to keep and carry arms, see section 2573 of Title 6.

Prohibitions regarding arms, exemptions, see sections 2571 and 2572 of Title 6.

Publication of regulations under this section, see section 1541(b) of this title.

### § 1472. Granting and revocation of hunting permits

When an application for a permit to hunt is granted under this chapter, the Governor shall indorse his approval thereon, file the application, and cause a permit to be issued to the applicant upon payment by him of a fee of \$1. The permit shall run for the fiscal year in which it is issued except that it may be revoked by the Governor for cause. 76A Stat. 49.

#### HISTORY

Derivation. Based on C.Z. Code 1934, Title 5, § 874 (July 5, 1932, ch. 418, § 4, 47 Stat. 573), as amended Sept. 26, 1950, ch. 1049, § 2(b), 64 Stat. 1038.

Words "at any time", which related to revocation of permits, for cause, by the Governor, are omitted as surplusage.

### § 1473. Hunting pursuant to permit

Hunting permits issued under this chapter shall allow the holder thereof to have, carry and use firearms in the areas prescribed by the Governor, and on the conditions imposed by him in the regulations issued pursuant to section 1471 of this title. 76A Stat. 49.

#### HISTORY

Derivation. Based on C.Z. Code 1934, Title 5, § 875, part (July 5, 1932, ch. 418, § 4, 47 Stat. 573).

### § 1474. Prohibited acts

A person may not:

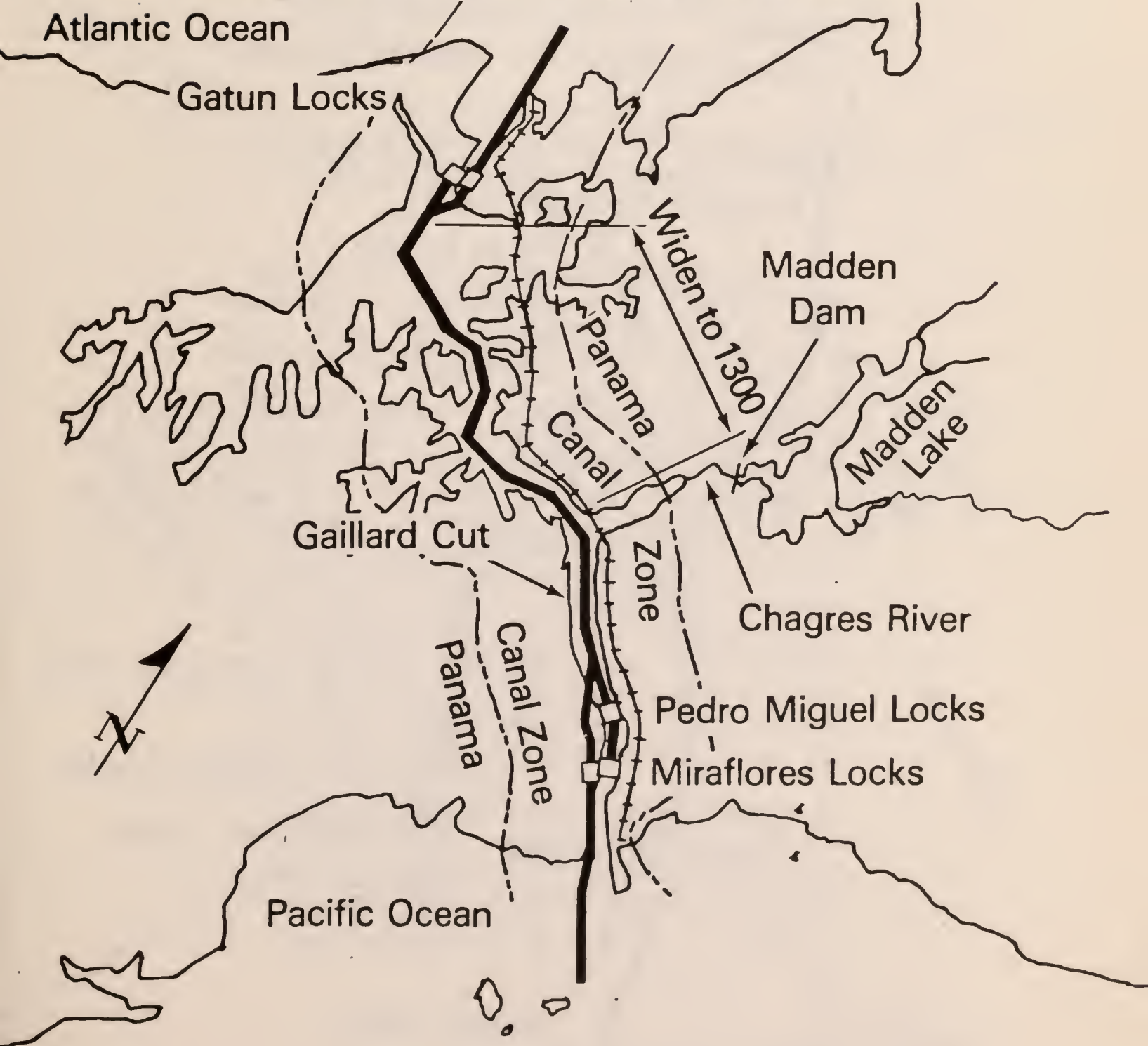
(1) hunt outside the areas designated in the regulations issued pursuant to section 1471 of this title; or

(2) hunt between the hours of sunset and sunrise with the use of an artificial light; or

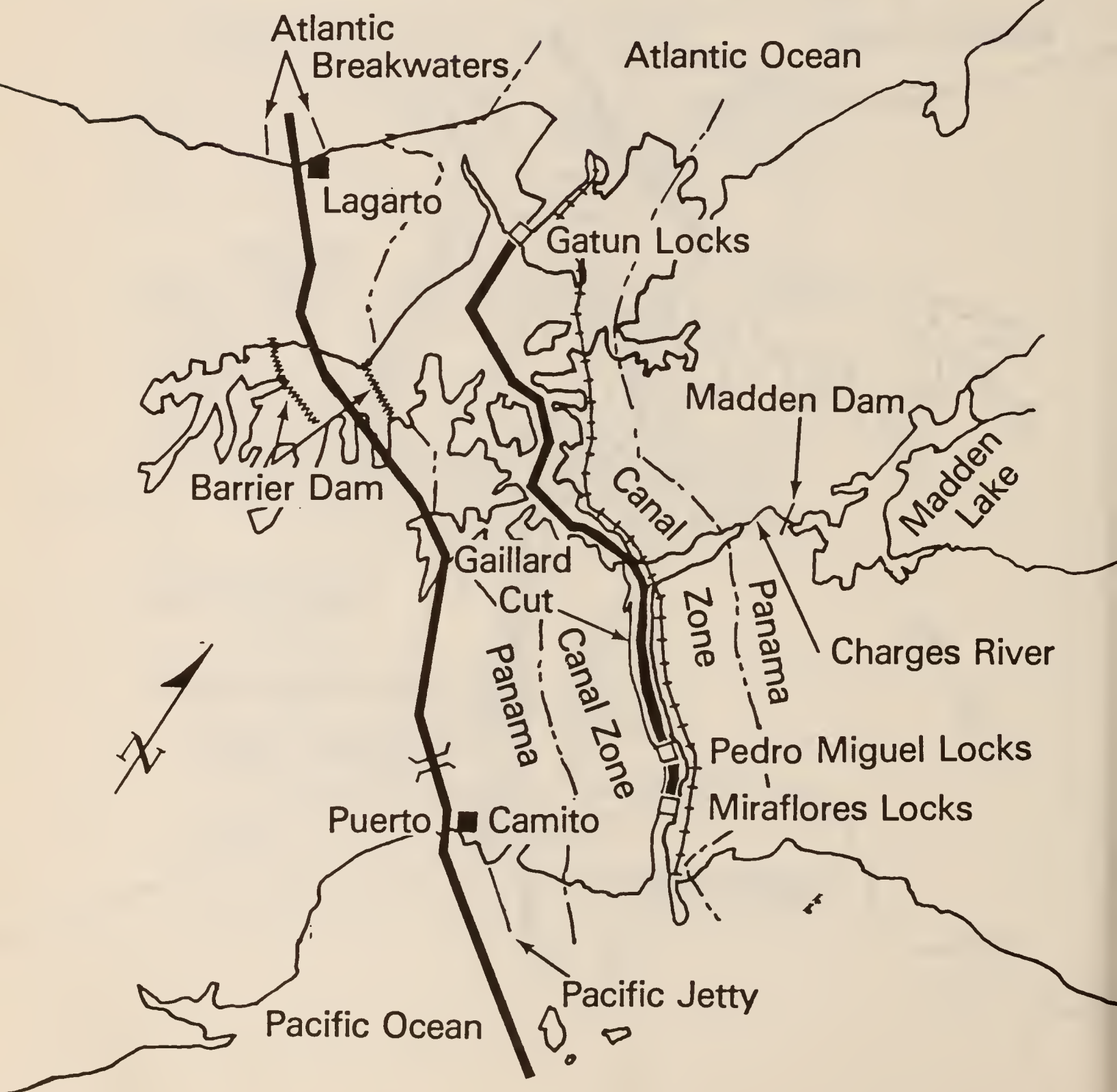
(3) hunt by the use of a gun or other firearm intended to be discharged by an animal or bird by means of a spring, trap, or other similar mechanical device; or

(4) except in the form and manner permitted by regulations issued pursuant to this chapter, hunt, trap, capture, willfully disturb, or kill a bird, or take the eggs of a bird. 76A Stat. 50.

# ***Proposed Plan for Third Locks***



# ***Proposed Sea Level Canal Route 10***



THE NATIONAL ACADEMY OF SCIENCE  
COMMITTEE ON THE ECOLOGY OF THE  
INTEROCEANIC CANAL

BY WILLIAM A. NEWMAN

*Scripps Institution of Oceanography, La Jolla, California, and  
Member, Committee on Ecological Research for the  
Interoceanic Canal*

The Panama Canal is a lock canal too small to accommodate many of the larger ships travelling between the Atlantic and the Pacific Oceans today. In the foreseeable future it will be unable to satisfy the increasing demand for ordinary ship transits.

The canal requires a considerable amount of water to operate. A single complete transit by a ship utilizes 52 million gallons of fresh water, or enough to supply a large city for a day. Presently the canal can handle up to some 40 ships a day, or 14,000 ships a year, when enough water is available.

Fresh water is the principal factor limiting the canal's operation. But even if water needs are satisfied, there would always be the limitation of the locks. Improvements can increase their capacity somewhat but, even so, it is estimated that maximum capacity set by the rate ships can be passed through locks would be reached in the next thirty years or so. Because of this the United States Government decided to look into the feasibility of a new canal, preferably a lockless one at sea level.

In 1964, the United States Army Corps of Engineers, the Atomic Energy Commission and the Panama Canal Company completed a study of 30 possible routes for a sea-level canal, with special reference to nuclear excavation. In 1965, President

248 *Bulletin of the Biological Society of Washington*

Lyndon Johnson appointed a five-man commission of citizens from private life to study the overall situation, as well as the sites surveyed. The commission was called the *Atlantic-Pacific Interoceanic Canal Study Commission*, (hereafter referred to as the Commission). Members were: R. B. Anderson, (Chairman) M. S. Eisenhower, Gen. K. E. Fields, R. A. Hill and J. P. Sheffey (Executive Director). The Battelle Memorial Institute, Columbus, Ohio (hereafter, BMI), was contracted by the Commission to carry out a number of environmental studies on a sea-level canal. The Commission was reappointed by President Richard Nixon and its report was to be presented to him in October of 1970.

In 1969, the National Academy of Sciences (NAS) was requested by the Commission to appoint a committee of biologists to review what had been accomplished and to make recommendations to the Commission by April of 1970 with regard to the ecological problems surrounding a sea-level canal. The new committee, called the *Committee of Ecological Research for the Interoceanic Canal* (CERIC) was charged with the following responsibilities: Examination of ecological issues implicit in the construction of a sea-level canal, with special reference to the marine environment, and the outlining of a program of research that might appropriately be done in the period before, during, and after the construction of such a canal. Further duties were to assess the ecological impact of the canal and to recommend ways of minimizing damage that might, in fact, occur. Evaluation of the need for a canal, and the wisdom of constructing it, were explicitly excluded from CERIC's task—deliberations were to be carried out under the assumptions that a canal would be built, that it would probably be located in the vicinity of the Panama Canal, and that construction would probably be by conventional means. CERIC consisted of: Ernst Mayr, Harvard University (Chairman); Máximo Cerame-Vivas, University of Puerto Rico; David Challinor, Smithsonian Institution; Daniel Cohen, Bureau of Commercial Fisheries (BCF), Washington, D. C.; Joseph Connell, University of California, Santa Barbara; Ivan Goodbody, University College of the West Indies, Jamaica; W. Newman, Scripps Institution of Oceanography (SIO); C.



Ladd Prosser, University of Illinois; Howard Sanders, Woods Hole Oceanographic Institution; E. O. Wilson, Harvard University, and Donald Wohlschlag, University of Texas.

Two *ad hoc* committees were subsequently appointed by NAS and CERIC. One on Oceanography included: Alan Longhurst, BCF, La Jolla, (Chairman); W. H. Bayliff, E. Forsbergh, Forrest Miller and Merritt Stevenson, all of BCF, La Jolla; D. Inman and B. Taft, SIO and C. Rooth, University of Miami. The other, on Hydrology, included: Luna B. Leopold, United States Geological Survey (USGS), Washington, D. C., (Chairman); Walter B. Langbein, USGS, Washington, D. C.; Thomas Maddock, Jr., USGS, Tucson; Robert H. Meade, USGS, Woods Hole.

The following considerations are my understandings of the bases of deliberations of these committees:

The Panamic Isthmus has separated the tropical American marine biotas, of approximately 8,000 Pacific and 7,000 Caribbean species, for three to five million years and this period of isolation has allowed them to diverge markedly from whatever similarities they originally held. A 10% similarity between the Recent biotas has been estimated. Despite claims to the contrary, CERIC observed that the Panama Canal has not allowed significant interchange between the two oceans because Gatún and Miraflores Lakes form a fresh water barrier between them.

An unbarriered sea-level canal would allow biotic interchange, the consequences of which are unknown. There would be two types of problems: those of scientific and those of economic importance. The latter of course cannot be separated wholly from the former and separation here is quite arbitrary. Consequences of scientific import include the disruption of fresh water and marine communities before they have been adequately studied and the concomitant interactions that would follow. Those problems that presently can be identified as economically important include effects on fisheries, recreational resources, and general living conditions within the areas affected. What is apparently happening to the eastern Mediterranean sardine fishery, presumably a result of the Aswan Dam, is a recent example of what can occur when large ecological changes are made. Furthermore, the extensive studies

*National Academy of Science Committee*      249

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250 *Bulletin of the Biological Society of Washington*

required to understand the collapse of the California sardine industry were in good part necessitated by the lack of previous knowledge. It would be far better to have population dynamics of Panamic fisheries well-understood before a sea-level canal were built. Without background information, attempts to understand and explain changes that occur after a canal is completed would have serious shortcomings.

Transfer of undesirable marine organisms, undesirable in any terms one likes, but affecting recreational, fisheries and other economic resources, is a distinct possibility. The Yellow-bellied sea snake and the Crown-of-Thorns starfish are two Pacific forms that might get into the Caribbean, should an unbarriered sea-level canal be built. The risk of introducing parasites and pathogens was also considered by CERIC, and there are undoubtedly many other kinds of interactions of which we are not aware.

CERIC, therefore, considered an unrestricted breaching of the Panamic Isthmus by a sea-level canal totally unacceptable because of what has been experienced when comparable barriers have been eliminated or all but eliminated in the past. It will be recalled that the Suez Canal remained an ineffective connection between the Red Sea and the Mediterranean, until recently, because of the hypersaline barrier formed by the Bitter Lakes. The same might be said of the Panama Canal because of the fresh water barrier formed by Gatún Lake. We can also recall what an effective barrier Niagra Falls formed before ship canals by-passed them, letting the sea lamprey into the Great Lakes. Therefore, the establishment of an antibiotic barrier within an interoceanic canal was recommended by CERIC.

Bubble curtains, electrical weirs, ultrasonic screens, etc., were among the physical barriers considered. All need much research and each has drawbacks. Perhaps an effective combination of two or more could be worked out. Such physical barriers were not highly recommended by CERIC, for, as with chemical barriers, CERIC claimed no expertise in this field.

CERIC went on to consider treating the waters contained within the canal in some way. However, maintenance of a parcel of treated water in the sea-level canal would not be a

simple matter. There is a marked difference in sea-level and tidal amplitude between the two oceans. The Pacific side has a tidal range of 21 feet and is on the average 0.7 feet higher than the Caribbean which has a tidal range of but a few feet. A modern sea-level canal would have a cross-section of some 50,000 square feet, which, under these conditions, would allow an average flow of approximately 1 foot per second. This would result in a net transport of about 50,000 cubic feet of water per second from the Pacific to the Caribbean, an amount equivalent to about half the discharge of the Nile before the Aswan Dam. Peak currents of eight feet per second, or about five knots, would occur about 10% of a tidal cycle. During the remainder of the time, currents would range between some moderate negative value and four knots. Such strong currents would make the maintenance of a parcel of treated water within the canal virtually impossible. However peak velocities would not be realized because, for navigational purposes, tidal barriers were deemed necessary by the canal engineers. Therefore, CERIC recommended the tidal barriers be so arranged as to keep the net flow to a minimum, so that the contained waters could be treated and maintained in an appropriate way, as an antibiotic barrier.

CERIC concluded that a fresh water barrier was among the least objectionable. But there would be no possibility of supplying the amount of fresh water needed to form a hyposaline barrier unless the tidal barriers kept the flow very low. If the flow could be kept to a minimum, CERIC considered a fresh water barrier worthy of investigation by the engineers. CERIC also considered that if a parcel of water within the canal could be warmed sufficiently, an efficient thermal barrier could be formed. Nuclear or conventional power plants probably would be needed in the new canal zone and CERIC suggested perhaps the waste heat could be used to supply the thermal barrier.

CERIC recommended that fresh water and thermal barriers be combined. The effectiveness of fresh water and thermal barriers would be much enhanced when used together due to the synergistic relationship between them. Virtually all marine organisms would be killed by a residence time of 48 hours in 0.5-1.5‰ (<5%) seawater. Temperatures of 45°C,

alone, for the same period, would also be lethal. When salinity and temperature are combined for 48 hours the gradient can be less severe. For temperate forms, a salinity of 10‰ (3.4%) and a temperature of 37–38°C was tentatively considered to be satisfactory. Research would have to be performed to see if these figures would be applicable because they are based on experiments carried out on relatively hardy temperate species. In general, tropical organisms are more sensitive to change, especially in temperature, so an even less severe gradient might be practicable.

General conclusions were that researches should begin well in advance of the canal's construction. Laboratory work in physiology should include research on osmotic and thermal tolerances, reproductive cycles, and life histories. Additional collecting of the biota for taxonomic studies, as well as detailed work in systematics, would also be required. Field studies should include work on nearshore communities, such as mangrove swamps, mud flats, soft bottoms, and coral reefs, as well as oceanographic studies. Oceanic work considered included biological, chemical, physical and geological oceanography. The pursuit of these researches would require funding, space, ships, and administration.

In view of its findings, CERIC recommended that a Commission on the Ecology of the Interoceanic Canal be established. A distinguished governing board of North, Central and South American scientists would be required, and the principal administrative office for this board would probably best be situated in Washington, D. C.

One major 120–150 foot ship, two 65 foot trawlers, and an assortment of small craft were considered necessary to support field operations. Ten principal international investigators, plus a supporting staff of at least 20 junior scientists, technicians and secretaries, would be resident personnel. Space and funds for visiting investigators should be available. Two laboratories, one on the Caribbean side and a major one on the Pacific side, would be needed for physiological, marine biological, systematic, and oceanographic work. Subsidiary laboratories, especially in the Caribbean, would also require support, especially after the canal was operational.

An itemized initial capital outlay was estimated to be approximately 4 million dollars with an annual operating budget of about 2.5 million dollars. It should be borne in mind that 22 million dollars were spent looking into the feasibility of nuclear excavation (now considered impractical), and that the construction of a sea-level canal by conventional means, at 1970 price-levels, is to the order of 3 billion dollars. The ecological studies, then, represent but a small fraction of the total capital outlay and operational costs of a sea-level canal.

To summarize, the principal problem before CERIC was to evaluate existing knowledge on the effect of mixing two previously separated biotas by creating an interoceanic connection across the Panamic Isthmus. The literature on the subject is scattered and varied, and conclusions range from "catastrophe" on one hand, to "no significant, or even beneficial, effects" on the other.

CERIC viewed the situation in the following way: Specifically what would happen by allowing the two biotas to mingle cannot be predicted, but experience indicates that undesirable events have followed virtually every ecological disruption and barrier-removal in the past. Reduction or removal of the terrestrial and fresh water barriers that presently separate the Panamic marine biotas would obviously lead to exchange, and the exchange would not be negligible. The effects of the exchange would not be limited only to the areas immediately adjacent to the canal openings, but would be far reaching. Therefore, CERIC took the stand that, since undesirable consequences are likely, exchanges of these biotas must be prevented as much as possible.

CERIC recommended that an antibiotic barrier be installed. A sea-level canal would require tidal barriers for navigational purposes. Engineers informed CERIC that these barriers would probably be submarine gates restricting, but not closing, the channel during periods of peak flow. CERIC, therefore, suggested that these gates be designed in such a way as to reduce the net flow to a minimum, so as to contain a thermo-hyposaline barrier, or any other effective antibiotic barrier, within the canal. The nature of the barrier was not strictly stipulated. Studies of the synergistic effect of heat and

dilution necessary to kill representative samples of marine invertebrates, fishes, plants, etc., of the area would be needed, if a thermo-hyposaline barrier were utilized, since available data are based primarily on studies of organisms of the temperate region.

CERIC recommended that the oceanography and marine biology of the region should be thoroughly studied, beginning as much as ten years before the opening of a sea-level canal, and that the situation should be monitored and studied afterwards, in order to check on the effectiveness of the barrier and to identify the causes of biotic changes likely to occur if the barrier were not being properly maintained.

CERIC recommended that a commission be established to administer the funds, facilities and research concerning the Panamic sea-level canal. It further recommended, in general terms, the kinds of research to be carried out.

CERIC's report and recommendations went to the Atlantic-Pacific Interoceanic Canal Study Commission in April, 1970.<sup>1</sup> Reverberations were immediately forthcoming. Two letters, one from Mr. Sheffey (Executive Director of the Commission) to Gerald Bakus, (NAS Staff Officer for CERIC), and another from Brigadier General R. H. Groves, (Engineering Agent for the Commission) to Dr. J. S. Coleman, (Executive Officer, NAS), were circulated among members of CERIC. These letters give the tenor of the philosophy of the Commission. The following are my own responses to some of their assertions and queries, paraphrasing my letter of May 28, 1970 to Dr. Coleman, with copies to the aforementioned Commission members and to members of CERIC. At least two colleagues in CERIC, namely from Puerto Rico and Woods Hole, also submitted letters in reply to the aforementioned, reflecting much the same feelings.

In his letter of May 18, Mr. Sheffey stated that the "CERIC report . . . is oriented almost entirely toward the alarmistic view point," implying that CERIC had taken an extreme stand. Actually it is Mr. Sheffey who has taken an extreme stand,

<sup>1</sup> Editor's note: Another viewpoint of the subsequent events may be found in Boffey, P. M., 1971, "Sea-level canal: How the Academy's voice was muted." *Science*, 171: 355-358.

for he says that nothing need be considered in allowing free interchange between the tropical American biotas beyond factors strictly associated with engineering practices because he believes the ecological consequences involve little or no risk. Actually CERIC's approach was, that "while ecologically undesirable, if a sea-level canal were deemed necessary for national purposes, it should be designed in such a way as to minimize ecological effects," and CERIC recommended an antibiotic barrier be installed. I hardly think this an alarmistic or extreme approach, any more than would be the recommendation that fish ladders and diverters be included in the construction of certain dams.

In this same letter Mr. Sheffey went on to imply that he could rally a group of biologists that would back up his assertion that there would be essentially no undesirable ecological consequences connected with a sea-level canal and who would place their names on a document disavowing recommendations for preventing free interchange of tropical American marine biotas. Could such a group, acceptable to a quorum of ecologists, be assembled? It seems very doubtful that a knowledgeable person would allow himself to be held responsible for the undesirable consequences that could result from the introduction of such organisms as the Indo-Pacific starfish, *Acanthaster*, or the Eastern Pacific sea snake, into the Caribbean. Considering the wide range of conditions under which these organisms presently thrive, there appears to be no compelling reason to suspect that they could not become successfully established in the Caribbean and, that they would remain dynamically neutral in their new environment, would be most unlikely indeed. Such considerations have been discussed with informed people outside of CERIC, and have evoked agreement rather than arguments to the contrary.

We are not faced here simply with the responsibility for the economic losses that might occur. The free mixing of tropical American marine biotas would enact irreversible changes, not only locally, but, eventually, throughout the Indo-Pacific and tropical Atlantic, that virtually no amount of might nor money could significantly alter. Experience in the past strongly suggests that some of these interactions are likely to be quite un-



258 *Bulletin of the Biological Society of Washington*

desirable and the potential threat, as regards a sea-level canal, cannot be ignored.

Mr. Sheffey has had an elastic collision with knowledge in his argument that the Crown-of-Thorns starfish (and, therefore, presumably many other organisms of which we know little or nothing) already would have established itself in the Caribbean were conditions there favorable for it. Such a statement only displays an ignorance of the facts and of the principles of zoogeography and elementary ecology.

General Groves, while taking a more sober approach than Mr. Sheffey, in his letter of May 11, 1970, also queried CERIC's considerations, as though, somehow, the significance of the biological and physical data at CERIC's disposal had escaped CERIC. His major points were of two types. The first concerned CERIC's judgments on the "desirability and feasibility of a sea-level canal." There is nothing known to be ecologically desirable about the sea-level canal. Virtually anything is possible, of course, but the probability of desirable ecological effects is extremely remote. On the other hand, ecological changes are certain and, for the most part, irreversible, and the probability that some of these would be undesirable is great enough to warrant concern by all. From a purely ecological point of view, no canal should be built, and this is, perhaps, the recommendation an uncompromising conservationist would feel compelled to make. Desirability can only be couched in economic terms, for a number of reasons ranging from world commerce to defense, and these were neither within the purview nor competence of CERIC to assess. If, for various non-environmental reasons, a sea-level canal were deemed essential, in order that it be ecologically tolerable, CERIC considered that the canal must be designed and constructed in such a way as to have as little ecological impact as possible, and must include mechanisms for the prevention of exchange of marine organisms between the tropical Americas when in operation. To prevent exchange CERIC recommended an antibiotic barrier be installed. CERIC had no expertise on how acceptable barriers could be implemented; decisions of feasibility would come from engineering studies. This was all in the report to

the Commission, yet we have heard virtually nothing of what feasibility problems this recommended restraint would impose.

As to assessing the "significant and rather extensive movement of marine life through the present canal" mentioned again by General Groves, and often reiterated by Mr. Sheffey, there is no documentation of this. There are a few fouling and euryhaline organisms, most of which have undoubtedly gotten through from the Caribbean to the Pacific, but these are neither numerous nor wholly marine. If it were known that a spectrum of marine organisms had been getting through the existing canal, primarily in ships' ballast tanks, it would be well that measures be taken to stop the transport, but there is no evidence that successful transports of this kind have been made. CERIC also recommended against salination of Gatún Lake, for even though the degree of salination probably would not be sufficient to permit passage for most oceanic organisms, it would nullify a good deal of the effectiveness that this fresh water barrier presently has in preventing the exchange of hardier shallow water forms. The impact that salination would have on the fresh water organisms of the region is another matter.

General Groves' second question concerned ecological information gathering and the research program needed, should a sea-level canal be built. Most if not all of the information needed to answer this was contained in the CERIC report, although it might not all be readily identifiable without a complete reading. Therefore, one can only agree wholeheartedly with the General's suggestion that a five to ten page abstract of the CERIC report be published with the Commission's report (see below as to what was published).

In consideration of CERIC's recommendations, one would have thought the Commission would have started exploring the kinds of antibiotic barriers that would do the job effectively and economically. There are a number of possibilities and, if appropriate minds were brought together to work on the problem, it is likely a reasonable solution could be developed that would provide little or no interference with the operation of the canal, at negligible cost.

The Commission's report went to President Nixon in Octo-

ber of 1970. Copies were not received by this and, presumably, other members of CERIC. The report contains a four-page chapter on "Environmental Considerations," and only through the special efforts of Alan Longhurst, Chairman of CERIC's Oceanographic Subcommittee did I receive a copy of it. The recommendations of CERIC are not cited in the chapter. The CERIC report is mentioned, but only to the extent that it is to be found in Appendix 16 to Annex V, "Study of Engineering Feasibility," of the Commission's Report—that is, somewhere back in the archives presumably supporting the principal text.

The Commission's chapter on "Ecological Considerations" does contain better than a page-long summary of BMI's conclusions which, while minimizing the effects of trans-american tropical biotic exchange, appear to stand somewhere between those of CERIC and the Commission, especially with regard to barriers. The BMI summary states: "Environmental conditions in[-trinsic to] the [sea-level] canal would constitute barriers to the migration of both plankton and nekton, and effectiveness of these barriers could be enhanced by engineering manipulations of fresh water inputs to the canal and other artificial means." The Commission follows by saying that "it would be possible to install a temperature or salinity barrier." However, the Commission feels that "the risk of adverse ecological consequences stemming from construction and operation of a sea-level Isthmian canal appears to be acceptable" and "no such barrier was included in the design, because the need for anything in addition to tidal gates has not been established." Their recommendation to our President, without further ado, is to build a sea-level canal without an antibiotic barrier despite CERIC's strong recommendation to the contrary. One wonders on whose judgment CERIC's primary recommendation was so summarily dismissed.

The short shrift given the year-long studies and deliberations presented in the CERIC report is particularly disappointing because the resulting recommendations seem from well-considered analyses of the situation by some of the most intelligent and reasonable men with whom I have ever had the privilege to work. Mr. Sheffey's accusations imply a polariza-

tion between BMI and CERIC. This was not the case and personal communications with BMI were most satisfactory.

Mr. Sheffey erred in dealing with CERIC recommendations as though they represented an untenable extreme. Little could be further from the truth. In light of existing knowledge and experience, the idea of connecting the tropical American marine biotas by a seaway without an effective antibiotic barrier is presently indefensible. Surely further serious international deliberations on this subject are in order, regardless of who builds a sea-level canal across Central America.

#### ACKNOWLEDGMENTS

Many colleagues have helped me rationalize the difficult problems expressed here. While my desire is to acknowledge them all, they are so numerous that I am sure I have forgotten some for the moment. For any omissions I apologize. I would like to begin by thanking Robert Hessler, Richard Rosenblatt and Thomas Dana (Scripps Institution of Oceanography); Meredith Jones (Convenor of this symposium); members of CERIC—especially Ernst Mayr (Chairman), Alan Longhurst (Chairman, Oceanographic Subcommittee), Daniel Cohen, Iván Goodbody, Máximo Cerame-Vivas and C. Ladd Prosser; Peter Glynn and Ira and Roberta Rubinoff (Smithsonian Tropical Research Institute), all for instructive conversations and critical advice. I also would like to acknowledge Mrs. Ann A. Newman and Mrs. Carol Kourtz Platt (my research assistant of many years), for kindly keeping me abreast of developments appearing in the mass media.

## SUMMARY

BY DANIEL M. COHEN

*National Marine Fisheries Service  
National Oceanic and Atmospheric Administration,  
Washington, D. C., and  
President (1971), Biological Society of Washington*

More work remains to be done—that is the scarcely surprising conclusion to be drawn from this series of papers. Overall, I am not certain which is most impressive, how much is known, or how little is known. But it is to the latter that this Symposium is chiefly addressed, and I have tried to emphasize this in my summary.

In his Introduction, Jones states the objectives of The Society in convening this Symposium: to examine the present knowledge of the Central American biota.

Two papers, those of Challinor and Newman present overviews of the canal problem. The former discusses some of the political and diplomatic considerations which attended the excavation and operation of the present Panama Canal and points out difficulties that may precede the excavation of a new canal. In Newman's summary of the work of the National Academy of Sciences Committee on the Ecology of the Inter-oceanic Canal, he mentions the difficulty of making predictions based on presently available data. Partly on the basis of the Suez and Welland Canals he warns that a sea-level canal could result in undesirable biological consequences. Directions for further study and the provision of barriers to dispersal are recommended.

Two papers, those of Sheffey and Harleman, discuss physical characteristics and particularly the flow of water through the proposed sea-level canal. They leave no doubt that an un-

262 *Bulletin of the Biological Society of Washington*

obstructed canal would constitute a wide avenue for biotic dispersal. However, both stress that tidal gates would greatly decrease the interchange of water between the two oceans and Sheffey mentions the possibility of other kinds of barriers to dispersal.

Three papers, those of Glynn, Voss, and Bullis and Klima treat ecological assemblages on both sides of the isthmus. Glynn discusses several coastal communities (coral reef, rocky intertidal, sandy beach, mangrove shores and fouling), which are particularly important as they are most likely to be affected by faunal interchange. He presents a comparative account of selected aspects of the physical environment that may play a role in shaping biotas, and he also gives general comparisons of communities. Although considerable differences exist in the physical environments and biota of the regions generally adjacent to the proposed canal mouths, Glynn feels there is insufficient information available to allow accurate prediction of the results of an interoceanic sea-level canal.

Voss describes the survey work of the University of Miami, which, early on, had realized the need for additional research on the isthmian biota. On the basis of field work centered in deeper waters than those discussed by Glynn, Voss concludes that faunal interchange would be small. He postulates considerable similarities in the two faunas and predicts that adverse affects are unlikely as the consequence of a sea-level canal. Voss nonetheless recommends additional studies, as well as the inclusion of a barrier.

Bullis and Klima describe the marine fisheries of Panamá as a significant resource, both as a direct source of protein and for international exchange. The major part of the fishery is in the Pacific. Except for shrimp, the fishery resource is at present probably under-exploited. Species from several habitats are available. Shrimp from the benthic mud-bottom community are particularly important, as are onshore and offshore epipelagic species of scombroid and clupeoid fishes. Demersal species of grouper, snapper and spiny lobster are taken, as well as numerous other species.

Porter and Cheshire, treating corals and echinoids, respectively, present data on two relatively well-known groups of

animals; both authors note that some taxonomic problems remain and that further exploration may reveal undescribed species. Reef-building stony corals, in particular, are well enough known so that Porter has been able to compare faunas from both sides of the isthmus. He finds them very different and suggests reasons based on historical zoogeography. For the less well-known solitary stony corals, similarities in the two faunas increase with depth. Cheshire finds exactly the opposite situation in echinoids, with a decrease in faunal similarity as depth increases. Geminate species of echinoids are discussed and suggestions are given for further research. Cheshire also presents a brief summary of knowledge of other less well-known echinoderm groups. Porter discusses his work on coral communities, the long-term continuation of which would be particularly desirable. Both echinoids and corals are examples of groups especially well-suited for continuing qualitative and quantitative monitoring. Neither Porter nor Cheshire are sanguine about the effects of the coral eating starfish *Acanthaster*, should it become introduced onto Caribbean reefs.

Papers by Earle on marine plants, Olsson on mollusks, Abele on decapod crustaceans, and Robins on fishes, all agree on one point, the biota is very poorly known, even on a qualitative basis. Earle suggests that the total known marine flora of 191 species for both sides of the isthmus may double, at least, with further collecting. She finds few species common to both sides, and most of these are cosmopolitan. Olsson takes an historical approach and presents an analysis of the origins of the present mollusk fauna, which he finds to be in the Atlantic; however, he estimates the Panamanian Pacific fauna to be about five times the size of the Panamanian Atlantic fauna. He suggests that the mollusks of the inlets, the shore and the mangroves, precisely the habitats most likely to be affected by a sea-level canal, are the least well-known. He concludes that a canal will have little effect. Abele reports at least 455 species of decapod crustaceans, for which he compares four kinds of marine habitats from both sides of the isthmus, as well as for freshwater. Robins divides the shore fishes into two groups, the insular, clear-water fauna which has a smaller likelihood of dispersing through a sea-level canal, and the continental fishes of more

264 *Bulletin of the Biological Society of Washington*

turbid waters. The latter, which are more likely to transit a canal, are not well-known taxonomically or ecologically, and Robins suggests some particular groups from this fauna for immediate attention.

Dressler reports on the Panamanian terrestrial flora and finds it poorly known; the same is true of the insects as surveyed by Weber, who suggests that further clearing of forests attendant on the excavation of a new canal would broaden the highway for the trans-isthmian dispersal of certain kinds of insects. He recommends a thorough entomological survey along the canal route. Myers finds the herpetofauna relatively well-known. He suggests that the present canal is already a barrier to dispersal and doubts that a sea-level canal would significantly increase isolation. Myers also proposes a survey as a contribution to evolutionary zoogeography. He discusses the distinct possibility of the dispersal of the venomous eastern Pacific sea snake through a sea-level canal. Both Wetmore for birds and Handley for mammals treat diverse and well-known faunas. They make the point, shared by virtually all of the contributors on terrestrial groups, that a sea-level canal is an example of modern man's increasing pressure on the environment and its biota. The same conclusion can surely be drawn from the account by Torres de Araúz of the indigenous peoples of eastern Panamá.

Further to the conclusion stated at the beginning of this summary, some few other generalizations can be attempted. For marine organisms, most participants were strongly of the opinion that insufficient base-line data is available to allow predictions as to the possible effects of a sea-level canal on the plants or animals that they study. For those few groups which are relatively well-known, ecological studies are clearly in order. Information on the historical origins and the geographical relationships of various taxonomic segments of the biota are obviously of great importance in attempting to frame a rationale for choosing significant problems for further study. The nearly unanimous need for more collections and an increased level of taxonomic study lends particular significance to Cowan's consideration of curatorial problems, and some possible solutions, occasioned by extensive biological surveys



*Summary*

265

Two contributors have emphasized the need for overall planning and coordination. Voss's vivid description of his trials and tribulations, as he hurled himself against one bureaucracy after another in search of support, lends credence to the need for a body such as the proposed Commission on the Ecology of the Interoceanic Canal described by Newman.

The Society would like to take this occasion to thank each and every author for their contributions. We also thank the Conservation Foundation and the Smithsonian Institution for their support.

Finally, we all join with Llano in saluting Waldo L. Schmitt, who has contributed mightily in thought and deed to man's urgent task of cataloging the record of life on the increasingly unstable surface of the globe.



NATIONAL RESEARCH COUNCIL  
COMMISSION ON NATURAL RESOURCES

2101 Constitution Avenue Washington, D. C. 20418

ENVIRONMENTAL STUDIES BOARD

September 28, 1977

The Honorable Frank Press  
Director  
Office of Science and Technology Policy  
Executive Office of the President  
Washington, D.C. 20500

Dear Dr. Press:

This letter is in response to your August 1, 1977 request to the National Academy of Sciences for an assessment of the potential ecological effects of an interoceanic sea level canal across the American Isthmus. As requested, this letter report provides an assessment of improvements in the state of knowledge since the 1970 publication of the report and appendices of the Atlantic-Pacific Interoceanic Canal Study Commission<sup>1</sup> concerning:

- potential migration of marine organisms through a sea level canal;
- potential ecological effects of any such migration;
- natural or man-made barriers that might mitigate the effects of any such migration; and
- other potential environmental effects of a sea level canal.

Summary Statement

The Atlantic-Pacific Interoceanic Canal Study Commission concluded that "the risk of adverse ecological consequences stemming from construction and operation of a sea level canal appears to be acceptable," a judgment apparently based on considerations other than scientific information on potential environmental effects. Our Committee felt that available data are inadequate to reach a definitive conclusion concerning the overall magnitude of risk a sea level canal would pose to the marine environment. The Committee concluded, however, that the modest advances in knowledge

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<sup>1</sup>Interoceanic Canal Studies 1970. Washington, D.C.: Atlantic-Pacific Interoceanic Canal Study Commission (APICSC).

The Honorable Frank Press  
September 28, 1977  
Page 2

since the Commission report generally confirm the susceptibility of the region's marine communities to potential disruption from mixing of the Atlantic and Pacific biotas.

Marine organisms would undoubtedly pass through a sea level canal. The lack of adequate information prohibits either the identification of all species that would migrate or the prediction of specific ecological consequences, but there is convincing evidence that such migration has substantial potential for adverse effects.

Consequently, a barrier system would be necessary to restrict migration. The movement of water through a sea level canal should be kept to a minimum. The feasibility and effectiveness of thermal, salinity, chemical, or other novel types of artificial barriers cannot be established with data and analyses presently available. The protection afforded by the fresh water barrier in the present canal, however, indicates the desirability of maintaining a comparable fresh water barrier in any inter-oceanic canal.

#### Study Procedures

The Academy assigned responsibility for the study to its Environmental Studies Board, which assembled an ad hoc committee of experts to survey available information and prepare a report. Members of the Committee on Ecological Effects of a Sea Level Canal were: Alfred M. Beeton (Chairman), Great Lakes and Marine Waters Center; James H. Carpenter, Rosenstiel School of Marine and Atmospheric Sciences; Peter W. Glynn, Smithsonian Tropical Research Institute; John E. Hobbie, Marine Biological Laboratory, Woods Hole; James J. O'Brien, Florida State University; Richard H. Rosenblatt, Scripps Institution of Oceanography; and Ira Rubinoff, Smithsonian Tropical Research Institute. The Committee proceeded as rapidly as possible, recognizing that the hazards of a limited review were balanced by the value of a timely assessment.

In accordance with your request, the Committee largely restricted its investigation to potential effects on the marine environment. The Committee recognized that this emphasis excluded full treatment of other types of environmental impacts, including terrestrial, social, and cultural effects, that are considered essential to assessments of engineering projects of the magnitude of an interoceanic canal. The Committee also recognized that an ultimate determination of the advisability of a sea level canal will rest in part on the evaluation of economic and other nonenvironmental factors that are beyond the scope of its review.

The Honorable Frank Press  
September 28, 1977  
Page 3

The Committee considered potential effects of an interoceanic passage built at sea level by conventional technologies and located within the geographic range considered in earlier studies. Because the effects on the marine environment would be similar to those of a sea level canal, the Committee also gave consideration to modifications that could lead to salinization of the present locked canal.

The Committee reviewed relevant information from the 1970 Study Commission report, the reports submitted to the Study Commission by Battelle Memorial Institute<sup>2</sup> and an earlier NAS committee,<sup>3</sup> and other materials, including recent scientific papers and an annotated bibliography of relevant information that has become available since 1970.

To augment its members' direct familiarity with the subject, the Committee arranged to have twenty-four experts make brief presentations at its meeting held on September 1-2. They were asked to summarize findings in their fields since 1970 that impinged on the Study Commission conclusions, to comment on the validity of the observations and conclusions of the earlier reports, and to identify major research needs. About sixty persons attended the open discussion sessions. The Committee also received solicited comments from twenty-three other scientists with relevant research experience. Lists of contributors are attached.

### Findings

Although there are exceptions in particular subfields, the general state of knowledge has not improved significantly since the publication of the Study Commission report in 1970, and the imposing uncertainties identified in that extensive study remain largely unresolved. Although recently reported advances have augmented our empirical knowledge of the species and the marine communities of the region, the lack of central coordination has led to uneven progress in these fields and to virtual neglect of other crucial information needs, most notably on the feasibility and effectiveness of barriers to migration.

The marine floras and faunas of the Caribbean and Eastern Pacific have developed into discrete biotic assemblages in the millions of years since the Isthmian land barrier was established between the two oceans. The Caribbean area is tropical, with clear, warm, nutrient-poor waters.

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<sup>2</sup>Battelle Memorial Institute (1970) Possible Effects On Marine Ecology. Appendix 16, Interoceanic Canal Studies 1970. Washington, D.C.: APICSC.

<sup>3</sup>National Research Council (1970) Marine Ecological Research For The Central America Interoceanic Canal. Appendix 16, Interoceanic Canal Studies 1970. Washington, D.C.: APICSC.

The Honorable Frank Press  
September 28, 1977  
Page 4

The Pacific in the Isthmian region is also tropical, but is subject to seasonal upwellings that result in the presence of cool, turbid, nutrient-rich waters for about four months of the year. The mean sea level on the Pacific side is slightly above that of the Atlantic. The Pacific side undergoes tidal fluctuations of about 6 meters, whereas the tidal range on the Atlantic side is only about 0.5 meters. The present gravity-operated Panama Canal obtains its lockage water from the man-made, fresh water Gatun Lake, which is 85 feet above sea level. This configuration inhibits the migration of organisms and the Panama Canal has not significantly affected the integrity and isolation of the Pacific or Atlantic biotas. Historically there has been considerable apprehension that a direct salt water connection between the oceans would allow biotic interchange that could lead to severe ecological disruption.

- I. A sea level canal would provide a pathway for an interchange of marine organisms, with most movement from Pacific to Caribbean because of the difference in mean sea levels. Some immigrating organisms would successfully colonize their new habitat.

Marine organisms may disperse actively or may be transported passively by such means as ocean currents and rafting. The Committee confirms the Study Commission finding that a saline canal could provide a habitat for many species and could permit survival of many other species during the period they would require to migrate from one ocean to the other. Migration by adult organisms is by no means the only consideration, for most bottom-dwelling animals have pelagic larvae and thus a dispersal phase that is capable of passive transport, sometimes for great distances. Tropical species typically have long-lived pelagic larvae, most of which would be capable of passing through a salt water canal.

Available information does not allow identification of all species that would migrate. For one thing, there is no adequate inventory of marine organisms in the area. The Battelle report estimated that there are about 10,000 marine species along the coasts of Panama (of which only 1,000 species are common to both oceans), and that many species would be added by new surveys. Few new surveys have been undertaken and these have been conducted mostly at shallow depths; there is a critical absence of coastal taxonomic surveys from subtidal to 100 meter depths, an area that is beyond the reach of shore parties and is rarely sampled by deep water research vessels. Furthermore, the life stages of few species have been described fully; for example, the Committee was informed that the mode of development was known for only about 5 percent of the area's invertebrate benthic species, which commonly prove to have pelagic larvae.

Although there are seasonal variations, the mean sea level of the Pacific is higher than that of the Caribbean in the vicinity of proposed

The Honorable Frank Press  
September 28, 1977  
Page 5

canal routes. If unobstructed by a physical barrier, a sea level canal would permit substantial net water flow from Pacific to Atlantic, although mathematical models indicate that there may also be occasional reverse transport of Caribbean waters. Tidal gates could, in theory, be used to control flow direction and rate, but economic considerations may dictate long unobstructed periods that would result in considerable interoceanic water transfer.

Past experience demonstrates that some of the introductions of species into new environments will result in successful colonization. Many examples of such colonization are known for terrestrial, fresh water and estuarine organisms. Examples of biologically successful introductions are less conspicuous in the marine environment, but a number of intentional and accidental marine colonizations are known. As a result of the opening of the Suez Canal 118 species of Red Sea fauna had become established in the eastern Mediterranean and 14 had made the reverse migration by 1967. In 1971 Red Sea species constituted nearly 20 percent of Israeli trawl catches. In some cases Mediterranean species have declined in response; for example, Oratosquilla massivensis, a Red Sea species, was first collected from Egypt and Palestine in the mid 1930s. Now abundant in the Eastern Mediterranean as far north as Turkey, it has essentially replaced Squilla mantis, the native Mediterranean species. Charybdis longicollis, a Red Sea crab considered a pest by fishermen, arrived in the Mediterranean after 1958, and by 1964 had become very abundant. Portunus pelagicus, another Red Sea crab, has made its way to Sicily, where it now forms a commercial fishery. These findings and others indicate that colonization may follow the opening of potential pathways by a matter of decades.

It has been suggested that there has already been extensive migration of many marine organisms through the present canal in the ballast tanks of ships. The Committee feels that such transport probably occurs, but only infrequently leads to colonization. Ballast water carries predominantly planktonic species, most of which are already present in both oceans. Ships generally hold ballast waters for long periods in metal tanks that are inhospitable and may contain paint and other materials that are toxic to marine organisms. Ballast tanks are usually pumped out at distances from the canal while the ship is under way, so any organisms surviving tank conditions and the mechanical rigors of pumping are likely to be widely dispersed at densities below those required for a successful colonization. The volume of water in ballast tanks is small compared to the amount that would be transported through a sea level canal. The case of ballast transport does not present adequate evidence for an assessment of the potential transport of organisms through an interoceanic canal.

- II. Many direct and indirect effects of colonization can be anticipated. These effects may be produced by alteration of predator-prey relationships, genetic and behavioral interaction among similar species, introduction of new competitor species, and invasion by disease organisms. A sea level canal would also produce important local effects.

The introduction of plant and animal species into new areas has frequently produced severe irreversible ecological effects, some of which have been detrimental and some beneficial. The direct consequence of migration and colonization may be a marked change in the abundance of particular species by one of the adjustment mechanisms discussed below. In some cases the result may be considered favorable, as with the establishment of new commercial or sport fisheries; in other cases, however, the outcome may be harmful overpopulation, local exclusion, or even extinction. A change in abundance may have immediate and visible significance, as in the case of the blocked channels and reservoirs that resulted from the introduction of the water hyacinth to Florida and Africa. In other cases, the ecological effects are as significant but less publicized; for example, the recent accidental introduction of the marine algae Codium to the northeast coast of the U.S. has had an unexpected harmful effect on clams; the algae adheres to the clams and results in their being carried away by currents. Many introductions have exacted an enormous economic and human toll: the invasion of the Great Lakes by the sea lamprey, the inhabitation of Australia by rabbits, and the introduction of human disease organisms to previously unaffected populations illustrates the variety and magnitude of these costs.

As significant, perhaps, are the indirect effects of changes in species abundance, a shift to a new ecological equilibrium that may involve many other species or entire communities. In the North Pacific, for example, the virtual extermination of the sea otter led to a great abundance of sea urchins, which in turn resulted in a marked reduction in beds of its food, the giant kelp. These kelp beds are important in the ecology of many fishes and invertebrates. Of special concern in Central America are the coral reefs and sea grass meadows, since they are the basis for complex and fragile communities, and a plausible effect of interoceanic introductions would be major changes in these communities.

Ecological imbalance can be produced from new colonizations by several means. Predators and their prey are coadapted in their natural environments, and the introduction of a new predator can have profound effects on naive prey species. The extermination of terrestrial island species by introduced predators is well known. The introduction of the oyster-drill in England and the West Coast of the U.S. has had detrimental effects on oyster fisheries. While a full accounting is impossible with



The Honorable Frank Press  
September 28, 1977  
Page 7

present information, several potential predators that could migrate through a sea level canal can be identified. For example, three eastern Pacific predators of coral may be cited, all of which lack ecological equivalents in the western Atlantic. Coral reefs in the Caribbean may lack natural defenses against these predators, a gastropod snail (Jenneria), a starfish (Acanthaster), and a group of pufferfishes (Arothron). A number of other conspicuous predators now present in only one ocean could pass through an unrestricted sea level canal: the eastern Pacific yellow-bellied sea snake (Pelamis) is perhaps the best-known example, while the Pacific may be colonized by the great barracuda (Sphyraena barracuda) and the Portuguese man-of-war (Physalia physalis). Conversely, some otherwise inoffensive migrants may be able to colonize in the absence of their natural enemies. Liberated from predators or competitors, they may experience uncontrolled population growth and deplete limited resources at the expense of native species.

Because Caribbean and eastern tropical Pacific organisms have evolved into distinct but still closely related species, there are many hundreds of genetically similar pairs of species on opposite sides of the Isthmus. This fact further complicates the already difficult task of forecasting the results of faunal mixing. It is possible, for example, that morphologically similar species may err in mate selection, leading to unsuccessful attempts to reproduce. Some scientists have expressed concern about the ecological consequences of hybridization when interspecific reproduction does succeed. For example, offspring may inherit characteristics that leave them less able to cope with stress than their progenitors. On the other hand, in some instances hybrid species could prove superior competitors or commercially more valuable.

Widely accepted ecological theory holds that species with identical resource requirements cannot coexist. Compounding the potential problem of the introduction of new competitors is the morphological similarity of many of the interoceanic species pairs, which suggests that many will have common resource requirements. In this case, introduction will inevitably lead to competition, and a possible result of direct competition is local extirpation or extinction of the less efficient competitor.

The Committee noted that while there is at least fragmentary background information on potential predators and competitors, the most significant ecological hazard could be the introduction of virtually unknown parasites and pathogens. There has been scant investigation of marine diseases and their propagation, even for commercially important species. Generally, species of marine microorganisms are ubiquitous in the world's oceans, but some pathogens can survive only short separations from their hosts and consequently have not been transported globally. Closely related species may be particularly susceptible to each other's diseases. The fact that

best known examples of the rapid spread of diseases through non-immune populations are from humans (e.g., measles, small pox, influenza) and terrestrial organisms (e.g., potato blight, Dutch elm disease, chestnut blight, myxomatosis in rabbits), may merely reflect the relative lack of knowledge about marine pathogens. It is known that a pathogen eliminated most of the eel grass in the North Atlantic in the 1930s and that Pacific populations were untouched. Migration of disease organisms could possibly affect the shrimp, fin fish, and fish meal industries in both oceans.

Construction of a new canal could be expected to produce significant local effects. Spoil from construction of the existing canal eliminated mangrove forests, sea grass beds and coral reefs on both sides of the canal. Excavation for a sea level canal would be much more extensive and local destruction could be expected to equal or exceed that observed after construction of the Panama Canal. Currents and water transport through a sea level canal may be expected to increase significantly the sediment load of receiving waters. The transport of these sediments by ocean currents would harm mangrove shores, sea grass beds and coral reefs for undetermined distances along the coasts.

The local consequences of a sea level canal for nutrient dynamics and lower food chain processes were addressed in the Study Commission report. That discussion is essentially accurate, but recent advances in comparative ecosystem analysis and the use of models now permit more specific predictions. Discharge of nutrient-rich Pacific Ocean water into the nutrient-poor Caribbean would result in significant local perturbation. The biological consequence would be the creation of a plume of enhanced plankton production off the Caribbean end of the canal. Such an area would not be large enough to augment fisheries yield significantly. The plume would probably provide a favorable environment for planktonic organisms carried through the canal. It may be possible to predict the size, persistence and magnitude of the plume using available models.

III. A barrier system is necessary to limit the movement of organisms through a new sea level canal or through the existing canal if the lockage water is made more saline.

The Study Commission concluded that barriers to migration in a sea level canal were both necessary and feasible, but did not present supporting information on the feasibility and efficacy of specific types of barrier. Both the Battelle and NAS investigations concluded that none of the barrier concepts that had been proposed could be expected to prevent migration altogether. The Committee is not aware of significant advances in knowledge since 1970 concerning the design of biological

The Honorable Frank Press  
September 28, 1977  
Page 9

barriers for an interoceanic canal. A barrier feasibility study is essential to a valid assessment of the environmental impact of a sea level canal or of proposed modifications of the present canal.

There are many unanswered empirical questions that are fundamental to the design of artificial barriers. Most attention has been devoted to hyperthermal and hyposalinity barriers. However, the thermal and salinity tolerances for many of the several thousand species that may be candidates for migration are unknown; even less is understood about these species' potential to become acclimated to new conditions, or about the tolerances of non-adult forms. The practicality of maintaining thermal or fresh water barriers large enough to prevent migration is unconfirmed. Several novel barrier techniques (e.g., toxicants, bubble curtains, deoxygenation, ultrasonics) and artificial means of triggering avoidance responses in motile organisms have been mentioned, but neither their efficacy nor engineering feasibility for an undertaking of this size has been investigated.

It is commonly assumed that tidal gates would be required for most of the proposed canal routes to maintain currents that are safe for navigation. Such gates could be manipulated to fully control flow rates. The Committee observed that the ideal case from an ecological standpoint would be the attainment of zero net flow, a possibility raised in the Study Commission report. Although zero water transfer may prove impractical, keeping interoceanic transfer to a minimum would significantly reduce passive transport of organisms and would also enhance the practicability of hyposalinity, thermal, chemical, and/or other artificial barriers to migration. Most observers believe that traffic considerations dictate a tradeoff between flow restriction and the economic operation of a sea level canal, but these economic considerations have not been sufficiently examined to permit informed judgment concerning the practicality of zero-flow or low-flow canal operation.

Experience with the Panama Canal demonstrates the desirability of a fresh water barrier to interoceanic migration. The present canal constitutes an effective barrier to movement of the vast majority of Atlantic and Pacific species, partly because fresh water fills most of the canal route and partly because the seaward flow of lockage water from Gatun Lake inhibits passive transport. The paucity of biological surveys of the two coasts of Panama precludes a definitive evaluation of the canal as a fresh water barrier, but recent findings are encouraging. Collections from the lock chambers and lakes of the canal system contained a total of 165 species; of these, 57 were from the Atlantic side of Gatun Lake, 126 from the Pacific side, and 18 species are found on both sides of the lake. Of the 18 common species, 11 are fresh water forms and are confined to Gatun Lake and the higher lock chambers; the remainder are fouling organisms or are associated

The Honorable Frank Press  
September 28, 1977  
Page 10

with them and probably represent fortuitous transits of Gatun Lake on ships' hulls. Only nine species of fish are known to have migrated through the canal, according to a recent (1975) survey.

Various modifications of the present canal system have been proposed as alternatives to the construction of a sea level canal, most of them involving the construction of a third set of locks on both coasts of Panama. These larger lock chambers would raise the amount of water required per lockage by a factor of three or more.

The current demand on the Gatun Lake watershed is already close to the limit of fresh water supply; in fact, even if new construction to augment traffic capacity is not undertaken it is possible that subnormal precipitation and/or a marked increase in traffic could cause a fresh water supply crisis. Upon completion of the long-term improvement program of the Panama Canal Company, lockage water requirements will be more than 40 percent higher than can be sustained with present supplies.

Ultimately, then, augmentation of Gatun Lake is likely. The Study Commission reported that the most economical method of increasing water supply would be to pump sea water into the lake and thus into the canal. The resulting rise in salinity of canal waters would permit interoceanic migration, with most of the potential ecological effects of a sea level canal. A considerably more costly alternative to sea water augmentation would be the recirculation of lockage water. However, the Study Commission report indicated that because of unavoidable water losses, recirculation alone would not eliminate the need for sea water pumping once canal improvements are made. New construction to raise total fresh water storage capacity, such as building a dam across the Trinidad reach, should be further examined. It is expected that a combined recirculation-storage improvement plan adequate to prevent salinization of the Panama Canal would entail several times the cost of direct sea water augmentation.

IV. Research should be undertaken to determine the environmental effects both of a sea level canal and of any significant modification of the existing canal.

Research essential to determining the environmental impact of a sea level canal was identified in the earlier study, and the Study Commission recommended that "a permanent agency of the Executive be designated to support and coordinate public and private research activities that could contribute to the evaluation of the potential environmental effects of a sea-level canal, and if the decision is made to initiate its construction, advise the President as to the organization for and funding of such additional research as might be required to reach definitive conclusions."

The Honorable Frank Press  
September 28, 1977  
Page 11

Had that recommendation been followed we might today be in a better position to make judgments about the impact of a canal. This is not to imply that additional research will lead to precise predictability of the consequences of biotic interchange in the near future. Appropriate engineering feasibility studies, however, could be expected to permit a much less conjectural assessment of barrier concepts, and achievable advances in marine ecology for the region would at least allow systematic identification of species that are capable of migration.

Lacking an indication of relative priorities, the extensive research needs delineated in the 1970 NAS report have been of limited practical use. Although the Committee recognized a number of central questions for which research is required, its compact schedule did not permit a systematic ordering of needs. Research priorities should be assigned with respect to the uncertainties identified in the present report.

#### Acknowledgement

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Sincerely,



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# PANAMA CANAL COMPANY

ENVIRONMENTAL ASSESSMENT  
OF  
PROPOSAL TO INCREASE TOLLS

April 1976

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ENVIRONMENTAL ASSESSMENT  
OF  
PROPOSAL TO INCREASE TOLLS

Prepared by: W. M. Whitman, Kensington, Maryland

Approved: Canal Zone Environmental Quality Committee  
April 30, 1976

## ENVIRONMENTAL ASSESSMENT

### Proposed Increase in Rates of Tolls for Use of the Panama Canal

#### TABLE OF CONTENTS

	<u>Page</u>
<b>I. SUMMARY AND CONCLUSIONS</b>	
A. Summary	1
1. Environmental Impact	1
2. Adverse environmental effects that cannot be avoided	1
3. Relativity between local short term uses of environment and maintenance and enhancement of long-term productivity	1
4. Irreversible and irretrievable commitment of resources	2
5. Alternatives to proposed action	2
B. Conclusion	2
<b>II. INTRODUCTION</b>	
A. Description of Proposed Action	2
B. Panama Canal Traffic and Tolls	3
C. Panama Canal Traffic & U.S. and World Trade	4
D. Panama Canal Traffic by Trade Routes	4
E. Panama Canal Traffic by Commodities	5
F. Sensitivity of Panama Canal Traffic to Toll Changes	5
<b>III. ENVIRONMENTAL IMPACT OF 50% TOLLS INCREASE</b>	
A. Background	
1. Relationship of Tolls Change to Environment	8
2. Federal Maritime Commission Docket 73-38	9
3. Environmental Impact Statement in Docket 73-38	11
B. Local Effect	11
C. General Effects	12
1. Energy Consumption	
a. Rearrangement of Sources and Markets	12
b. Diversion via Suez or Cape of Good Hope	13
(1) Europe-Far East & Oceania	13
(2) U.S.-Japan (via Cape of Good Hope)	14
(3) Coal	14
(4) Philippines-New York	15
c. Diversion via Cape Horn	
(1) Iron ore	15

	<u>Page</u>
(a) Valparaiso to Baltimore .....	15
(b) Valparaiso to Europe .....	15
d. U.S. Rail Transportation .....	15
(1) Europe-Far East land bridge .....	16
(2) Intercoastal traffic .....	16
(3) Asia-East Coast United States .....	16
e. Summary—Energy Consumption .....	18
2. Air Pollution	
a. Diversion to minibridge .....	19
b. Diversion to longer water routes .....	20
3. Marine and Land Oil Pollution	
a. Marine oil pollution .....	20
b. Land oil pollution by railroads .....	20
4. Noise Pollution	
a. Ships .....	21
b. Railroads .....	21
5. Social and Economic Effects .....	21

#### LIST OF APPENDICES

A. Effect on Tolls Payments of Changes in Measurement Rules, March 23, 1976, by Vessel Types .....	25
B. Panama Canal Traffic Fiscal Years 1965 through 1975 .....	26
C. Comparative Distances to Selected Ports via Panama Canal and Alternate Routes .....	28
D. Estimated Average General Increases in Railroad Interstate Freight Rates Authorized by the Interstate Commerce Commission since 1961 (Economics & Finance Dept., Association of American Railroads, March 18, 1976) .....	30

#### LIST OF TABLES

Table 1 Cargo in Ocean Borne Commerce, 1973 .....	4
Table 2 Major Trade Routes in Panama Canal Traffic, 1975 .....	4
Table 3 Panama Canal Traffic by Commodities, 1975 .....	5
Table 4 Effect on Cargo Tonnage of 50% Increase in Panama Canal Rates of Tolls 1975, 1980, 1985 .....	6
Table 5 Effect of 50% Toll Increase on Commodity Movements through Panama Canal in 1985 .....	7
Table 6 Rearrangement of Sources and Markets Resulting from 50% Tolls Increase (by Commodities) .....	12

	<u>Page</u>
Table 7 Diversion of Commodities from Panama Canal to Suez or Cape of Good Hope resulting from 50% Increase in Panama Canal Tolls	13
Table 8 Cargo Diversions Involving Voyages of Decreased Length via Suez Canal or Cape of Good Hope	13
Table 9 Diversion of Cargo to Far East Minibridge by 50% Increase in Panama Canal Tolls (1985)	17
Table 10 Distances Yokohama to New York on All-Water Routes via Panama Canal	17
Table 11 Net Difference in Distance, Far East Minibridge and All-Water Routes	17
Table 12 Cargo Diversions Involving Voyages of Decreased Length	18
Table 13 Cargo Diversions Involving Voyages of Increased Length	18
Table 14 Emission by Far East Minibridge Nationwide	19



## ENVIRONMENTAL ASSESSMENT

### Proposed Increase in Rates of Tolls for Use of the Panama Canal

#### I. Summary and Conclusions

##### A. Summary

This report is an assessment of the environmental effect of a proposed across-the-board increase of approximately 19.5% in the rates of tolls for use of the Panama Canal. The assessment includes consideration of previous actions by the Panama Canal Company since July 1974 increasing tolls paid by vessels by 25.6%. Although the cumulative effect of this increase is less than 50%, the assessment is based on studies made for the Panama Canal Company projecting traffic through the Panama Canal in 1985 with no increase above the rates in effect prior to July 8, 1974, and with a 50% increase over those rates.

Part III of this report, entitled "Environmental Impact of 50% Tolls Increase," analyzes the environmental consequences of the proposed rate increase. This Part briefly summarizes the findings on environmental impact in the various aspects provided by the National Environmental Policy Act, 1969, Executive Order 11514 of March 5, 1970, and the guidelines issued by the Council on Environmental Quality on August 1, 1973 (40 CFR Part 1500).

##### 1. Environmental Impact

The analysis contained in Part III indicates that an across-the-board increase in rates of tolls for the use of the Panama Canal above the rates in effect prior to July 8, 1974, would not have a significant adverse impact on the overall consumption of energy, the ambient air quality, oil pollution and noise exposure. An increase in Panama Canal toll rates of that magnitude would have the following environmental consequences in 1985:

- a. No significant overall increase in the consumption of energy;
- b. An increase of approximately 1,099 short tons in pollutant emissions over the span of the United States that would not be significant in environmental terms;
- c. No significant change in oil pollution at sea or by freight trains on land;
- d. No significant change in the level of noise exposure;
- e. A slight decrease in tonnage handled in Atlantic ports of the United States with a consequent unquantifiable adverse effect on longshore employment in those ports, neither of which would be significant in environmental terms.

##### 2. Adverse environmental effects that cannot be avoided.

A 50% increase in Panama Canal tolls would result in the following unavoidable environmental effects:

- a. A minimal increase in air pollutants over the United States; and
  - b. An unquantifiable loss of employment and employment benefits in U.S. Atlantic ports.
- ##### 3. Relativity between local short term uses of the environment and maintenance and enhancement of long-term productivity.

In the short term, the local use of the human environment, i.e., a comparatively small reduction of traffic through the Panama Canal, would affect long term productivity, i.e., the production and movement of goods in U.S. and world commerce, insofar as maintenance and operation of the Pana-

ma Canal on a self-sustaining basis would be beneficial to those objectives. In the process, consideration would be given to the economic losses that might be sustained by U.S. ports and longshore employment in those ports in relation to the overall economic benefits to U.S. and world commerce of maintaining the canal on a self-sustaining basis through recovery of costs from the users of the canal. On the basis of economic data available to the Panama Canal Company, it is considered that an increase in tolls of the magnitude under consideration would serve to maintain and enhance the long term productivity of the human environment. In this context the minimal adverse effect of diversion of a relatively small amount of cargo on air quality and employment in U.S. ports will be insignificant in comparison to the overall benefit of maintaining the canal on a self-supporting basis.

#### 4. *Irreversible and irretrievable commitment of resources.*

The only irreversible and irretrievable commitment of resources involved in the proposed action is the amount of fuel consumed on the longer voyages involved in the diversion of some Panama Canal cargo to other routes. The amount of this additional consumption would be largely offset by the savings effected in the rearrangement of sources and markets and diversion of other Panama Canal cargo to shorter routes.

#### 5. *Alternatives to proposed action*

The formula for tolls established by 2 C.Z. Code 412 (76A Stat. 27) requires that tolls be prescribed at rates sufficient to cover the cost of operation of the Panama Canal, together with facilities and appurtenances related thereto. The legislative history of this section indicates that the adjustment of rates of tolls under the formula was intended to be "almost a ministerial function."<sup>1</sup> The requirements of the statute and financial data supporting the requirement for the tolls increase are fully discussed in the current proposal.

In view of the statutory tolls formula, the only alternatives to the proposed action (i.e., increasing tolls to cover operating costs) are to (1) reduce operating costs, or (2) recommend to Congress the amendment of the tolls formula.

In acting on the proposal to increase tolls, the Board of Directors will consider whether further reductions in operating costs are possible or feasible and whether the relationship between operating costs and tolls revenues is such as to require an increase in the rates of tolls and, if so, the extent of the increase. The alternative of recommending amendment of § 412 by the Congress to modify the requirement of the recovery of operating costs to shift the burden of financing operation of the Panama Canal from the users of the canal to the U.S. Treasury is one that the Board of Directors will also take into consideration in acting on the proposed increase in rates.

### B. *Conclusion*

The proposed increase in Panama Canal rates of tolls is not an action significantly affecting the quality of the human environment within the meaning of section 102(C) of the National Environmental Policy Act of 1969. (42 U.S.C. 4322(C)).

## II. Introduction

### A. *Description of Proposed Action*

Pursuant to sections 411 and 412 of Title 2 of the Canal Zone Code, the Panama Canal Company is proposing an across-the-board increase of approximately 19.5% in the rates of tolls for use of the Panama Canal. Specifically, the following increases are proposed in the rates of tolls:

	Toll Rates		Amount of Increase
	Present	Proposed	
Per Panama Canal net ton			
Laden	\$1.08	\$1.29	\$.21
Ballast	.86	1.03	.17
Per displacement ton	.60	.72	.12

<sup>1</sup> H. Doc. 460, 81st Cong., 2d Sess., p. 16.



This increase would follow an across-the-board increase of 19.7% effective July 8, 1974<sup>1</sup> and changes in the rules of measurement effective March 23, 1976, resulting in an estimated average increase of about 4.5% in tolls paid by vessels using the canal.<sup>2</sup> The total effect of the three rulemaking actions, including the present proposal is an increase in tolls payments of about 49.5%.

In the course of the rulemaking proceedings leading to the adoption of the 1974 tolls increase and the recent changes in the measurement rules, the Company concluded that neither action would have a significant effect on the quality of the human environment within the meaning of section 102(2)(C) of the National Environmental Policy Act of 1969, as amended.<sup>3</sup> The purpose of this assessment is to analyze the effect on the environment of the proposed new increase in the rates of tolls, taking into consideration the cumulative effect of the prior actions increasing the rates and changing the measurement rules used in the computation of tolls payments.

The environmental effect of an increase in rates of tolls results entirely from reaction to the increase by users of the canal. If that reaction is limited solely to payment of the tolls at higher rates, the rate increase will have no effect on the quality of the human environment. If, however, adjustments occur to avoid payment of the higher rate or to minimize the effect of the rate by rearrangements of the patterns of production and distribution of goods, there may be discernible environmental effects, particularly if the concept of the environment includes effect on the economic situation of people involved in the production and distribution process. The objective of this assessment is to identify such environmental effects and to evaluate their significance in the terms of the applicable statute.

#### B. Panama Canal Traffic and Tolls

Since the opening of the canal in 1914, records have been maintained showing the amount, origin and destination of cargo moving through the canal. Analysis of these records identifies the principal commodities involved in the total cargo movement through the canal as well as the principal trade routes over which the commodities are moving. These traffic statistics and analyses, published in the Annual Reports of the Panama Canal Company, supplemented by specialized studies of probable future traffic and the effect of tolls increases in varying increments, are used as the basis for the assessment of the effect of the tolls increase now under consideration on the quality of the human environment.

In evaluating the effect on traffic, and hence on the environment, of any increase in the rates of tolls for use of the Panama Canal, it is important to bear in mind that under the applicable statute<sup>4</sup> tolls for the use of the Panama Canal are based on the earning capacity of the ship rather than on the amount or nature of the cargo carried.<sup>5</sup> Earning capacity is the capacity of the ship to carry cargo or passengers. Under the statute and the measurement rules a partially laden ship pays the same tolls as

<sup>1</sup> 39 FR 26024.

<sup>2</sup> 41 FR 13582. The rules changes adopted by the Company, subject to approval by the President, would have increased tolls payments by an estimated average 9%, but the President withheld approval of a proposed new rule including in net tonnage space occupied by deck cargo. (Measurement Rules Proposal, pp. 21, 46). (See bibliography for key to abbreviations of publications cited in footnotes or in text.) The relationship between tolls rates and the measurement rules is explained in the Panel Report, page 14. The changes in measurement rules do not result in uniform increases in tolls paid by various types of vessels. The average amount of the increases varies from .9% for dry-liquid bulk carriers to 8.5% for general cargo ships and 27.7% for passenger vessels. The percentage increase in tolls for various classes of vessels using the canal is set out in tabular form in Appendix A.

<sup>3</sup> 42 U.S.C. 4322(2)(C).

<sup>4</sup> 2 C.Z. Code § 412 (76A Stat. 27).

<sup>5</sup> The basis of Panama Canal tolls is described at length in the testimony of the President of the Panama Canal Company in HMM&F Hearings, Serial No. 90-6, p. 50 *et seq.*

a fully laden ship of the same capacity, although if no cargo or passengers are carried, a ship is entitled to a lower rate.

### C. Panama Canal Traffic and U.S. and World Trade

Another factor bearing on the overall significance of an increase in Panama Canal tolls is the relationship of cargo movements through the Panama Canal to total cargo moving in world trade and in the ocean borne commerce of the United States.

The following statistics are for 1973, the latest year for which international statistics are available:

**TABLE 1**  
**Cargo in Ocean Borne Commerce**  
**1973**  
**(Millions Long Tons)**

Panama Canal <sup>1</sup>	United States <sup>2</sup>	World Trade <sup>3</sup>
128	564	3,516

<sup>1</sup> Annual Report, PCC, FY 1973, p. 5. Statistics on Panama Canal traffic from 1965—1975 are attached as Appendix B.

<sup>2</sup> Annual Report, MarAd, FY 1975, Table 6 (converted from short tons).

<sup>3</sup> Statistical Abstract of the United States, 1975, p. 835.

### D. Panama Canal Traffic by Trade Routes

As previously indicated, statistics accumulated by the Panama Canal Company on cargo movements through the Panama Canal identify the origin and destination of cargo and the amount of cargo moving on the principal trade routes using the canal. The following table shows the major trade routes in canal traffic in fiscal year 1975.

**TABLE 2**  
**Major Trade Routes in Panama Canal Traffic**  
**1975**

Trade Route	PC Net Tons	Long Tons Cargo
East Coast United States-Asia .....	41,970	55,402
Europe-Asia .....	13,779	10,028
Europe-West Coast United States/Canada .....	10,186	10,561
East Coast U.S.-West Coast South America .....	9,792	8,417
Europe-West Coast South America .....	7,642	5,481
U.S. Intercoast (including Alaska and Hawaii) .....	4,627	4,386
Europe-Oceania .....	4,484	3,590
East Coast United States/Canada-Oceania .....	4,112	4,130
East Coast Canada-Asia .....	3,891	3,461
South American Intercoastal .....	3,532	4,675
West Coast South America-West Indies .....	2,474	1,985
West Coast U.S.-East Coast South America .....	2,277	2,934
Subtotal .....	108,766	115,050
All other routes .....	26,288	25,051
Total .....	135,054	140,101

### E. Panama Canal Traffic by Commodities

Vessels operating on the various trade routes in 1975 shown in Table 2 were transporting commodities shown in Table 3, below:

**TABLE 3**  
Panama Canal Traffic by Commodities  
1975

<u>Commodity</u>	<u>Percent of Total Cargo</u>
Coal and Coke . . . . .	18.8
Petroleum and products . . . . .	17.1
Grains . . . . .	12.7
Ores and Metals . . . . .	9.5
Manufactures of Iron and Steel . . . . .	8.0
Nitrates, Phosphates, and Potash . . . . .	6.7
Miscellaneous Agricultural Products . . . . .	5.1
Lumber and lumber products . . . . .	4.1
Canned and Refrigerated Foods . . . . .	3.0
Chemicals and Petrochemicals . . . . .	1.9
Machinery and Equipment . . . . .	1.8
Miscellaneous Minerals . . . . .	1.7
All other . . . . .	9.6

Source: Annual Report, Panama Canal Company, fiscal year 1975

### F. Sensitivity of Panama Canal Traffic to Toll Changes

Since 1967 the Panama Canal Company has been engaged in a continuing study of the sensitivity of Panama Canal traffic to changes in the rates of tolls, using outside consultants as well as in-house staff. These studies examine the effect of increases in rates of varying amounts on projected traffic from the time the increase becomes effective through the succeeding years. The method employed is basically the same as that used in arriving at projections of traffic, namely, the analysis of the effect of an increase at a given rate on the movement of the principal commodities and over the trade routes involved in Panama Canal traffic in comparison to traffic without an increase in rate.<sup>1</sup> The studies examine alternatives to use of the canal for buyers, sellers, and carriers that might allow them to avoid use of the canal and payment of increased tolls. These options include alternatives in the route or mode of transportation, sources and markets and resource development. The elements involved in the analysis of sensitivity and the detailed methodology followed in the studies are set out fully in the reports of those studies.<sup>2</sup>

The conclusion reached by the studies of sensitivity of Panama Canal traffic to increases in the rates of tolls is that an increase of 50% or less would have a minimal effect on Panama Canal traffic. Specifically, it has been estimated that a 50% increase in the toll rate in effect before the rate increase effective July 8, 1974, would result in a reduction in cargo tonnage that without the 50% increase would be expected to move through the canal, amounting to 9 million tons in 1980 and 11.5 million tons in 1985, while over the same period aggregate Panama Canal tonnage is expected to increase by

<sup>1</sup> ERA Projections

<sup>2</sup> SRI Analysis, 1967; IRA, United States, (Rev. 1974); IRA, Maximum Revenues; HMM&F Hearings, Serial 90-6, pp. 126 *et seq.* A study now in progress by ERA is expected to be completed by May 15, 1976.

some 29%, even with the increase. In other words, it is estimated that an increase in tolls of 50% over the pre-1974 rate would retard the projected growth in traffic by 6.5% in the fifth year of operation and by about 8.4% in the tenth year as shown by the following table:

**TABLE 4**  
**Effect on Cargo Tonnage of 50% Increase in**  
**Panama Canal Rates of Tolls**

Year	No Increase in Tolls			50% Increase in Tolls			Reduction in % of Growth
	Tons	Growth		Tons	Growth		
		Tons	%		Tons	%	
1975 .....	136,489	—	—	134,444	(2,045)	(01.49)	
1980 .....	160,300	23,811	17.4	151,302	14,813	10.9	6.5
1985 .....	184,942	48,453	35.5	173,433	36,944	27.1	8.4

Source: IRA, Maximum Revenues.

As part of the development of revised projections of Panama Canal traffic for the period 1976-1979, ERA has made a new analysis of the effect on that traffic of toll rate increases of 25, 50, and 75 per cent above the current rates of \$1.08 and \$.86 per Panama Canal net ton for laden and ballast transits, respectively, calculated under the measurement rules as amended in March 1976. This projection and sensitivity analysis is scheduled for completion in May 1976, but an executive summary, attached to the Proposal as Appendix F, indicates that an across-the-board increase of 25% in 1977 would result in a diversion from the Canal of 1,389,000 tons of cargo in 1979. All the data points to the probability that the actual effect on Panama Canal traffic of the proposed increase of 19.5% will be substantially less than that projected for an increase of 50% over the rates in effect prior to July 8, 1974 under the measurement rules then applicable, but for purposes of this environmental assessment it has been deemed to be appropriate to test the effect of the proposed increase against the conclusions reached in the detailed analysis by commodity and trade route used in the earlier studies based on the pre-July 1974 rates.

The effect of a 50% increase in the rates of tolls on the areas involved in the production and distribution of the major commodities that move through the canal has been examined at length and the effect of an increase of that magnitude has been found to be minimal in every case.<sup>1</sup> The results of the studies are shown in the following table:

<sup>1</sup> In addition to the reports cited at note 2, page 11, see the following series of studies: IRA, United States; IRA, Central America, Mexico and Panama; IRA, South America; IRA, The Far East; IRA, Europe; IRA, Oceania; IRA, Canada & the Caribbean.

**TABLE 5**  
**Effect of 50% Tolls Increase on Commodity Movements**  
**Through Panama Canal in 1985**  
**(Thousands of Long Tons)**

<u>Commodity</u>	<u>No Increase</u>	<u>50% Increase</u>	<u>Difference</u>	<u>% Change</u>
Bananas	2,342	1,710	632	27
Iron ore	3,300	2,508	792	24
Crude Petroleum	19,900	17,512	2,388	12
Petroleum Products	13,600	11,968	1,632	12
Coal	14,000	12,460	1,540	11
Phosphates	4,700	4,277	423	9
Coarse grain & wheat	26,237	24,343	1,894	7
Soybeans	12,345	11,604	741	6
Iron & steel manufactures	11,543	10,966	577	5
Sugar	6,127	5,943	184	3
Miscellaneous ores	4,655	4,562	93	2
General cargo	30,659	30,046	613	2
Cargo not affected	35,534	35,534	—	—
Total	184,942	173,433	11,509	

Before proceeding to the detailed analysis of the environmental effect of the proposed increase in tolls on the movement of cargo through the canal on the various trade routes, the effect on Panama Canal traffic of the increases in tolls payments on general cargo ships, reefers, and passenger ships as a result of the recent changes in measurement rules should be noted. In general the cumulative effect of the 1974 rate increase, the measurement rules changes and the current proposal is to increase rates above that in effect before the 1974 increase by slightly less than 50%. The application of the measurement rules changes to passenger ships, reefers, and general cargo ships, will result in average increases in tolls payments by those ships of 27.7%, 9.7%, and 8.5%, respectively, bringing the cumulative amount of increased tolls payments for those ships to more than 50% in excess of tolls paid by such vessels prior to the 1974 rate increase.

Although the disparity in the basis for computation of tolls will have significance to individual ships transiting, for the purposes of this assessment of the environmental effect of the proposed general increases in tolls, the fact that these types of ships, as such, may pay at a rate greater than 50% over the rates in effect before the 1974 increase is not regarded as significant.

Passenger ships represent only a small segment of Panama Canal traffic—134 transits in 1975.<sup>1</sup> Only about 18% of the passenger ships transiting the canal carry cargo, and the sensitivity of that cargo movement is included in the analysis of commodity movements on the several trade routes. The passenger traffic as such is largely related to leisure activities and entertainment not sensitive to increases in rates of tolls. In 1975 there were a few transits of ships providing passenger service between England and New Zealand and there is a possibility this traffic may be diverted to the shorter Suez route, although the ports touched enroute will affect such rerouting decision.

In summary, it is considered that passenger ship traffic is not sensitive to tolls increases in the magnitude of that proposed, and that there would be no significant effect on the environment as a result of the effect on passenger ships of the proposed tolls increase.

Somewhat different considerations apply to the effect of the cumulative increases in tolls as they affect general cargo ships and reefers. Both of these types of ships carry general cargo, as do container ships and bulk carriers.<sup>2</sup> The studies made for the Panama Canal Company on future canal

<sup>1</sup> Annual Report, PCC, 1975, p. 48.

<sup>2</sup> Annual Report, PCC, 1975, p. 48.

traffic have indicated that by 1985 almost 100% of miscellaneous general cargo moving between the Far East and Europe and the United States will be containerized.<sup>1</sup> This trend is already reflected in Panama Canal traffic. From 1968 through 1975, container ship traffic grew from 55 ships carrying 262,600 long tons of cargo to 1,064 ships carrying 3,945,000 tons of cargo in 1975. During the same period, general cargo ship traffic declined from 6,847 ships carrying 37,181,222 tons of cargo in 1968 to 3,945 ships carrying 22,583,000 tons of cargo in 1975.<sup>2</sup>

Although the cumulative effect of the 1974 toll increase, the measurement rule changes and the current proposal would increase tolls paid by reefer ships and general cargo ships by approximately 57.7% and 55%, respectively, over the rate in effect prior to the 1974 increase, the excess of these average increases over 50% is not regarded as significant for the purposes of this assessment. The most obvious alternative would be a shift to the use of the container-ship or to a bulk carrier since the average effect of the measurement rules changes is estimated at 1% on dry cargo-liquid bulk carriers, 1.4% on container ships, 3.5% on vehicle-dry bulk carriers, and 4.5% for container-break-bulk ships, in contrast to the average effect of 9.7% on reefers, and 8.5% on general cargo ships. A shift of cargo from one vessel type to another would not have a significant effect on the environment.

A second possible alternative involving a shift away from use of the canal would move some of the cargo now carried by these ships to shorter routes.

The traffic projections estimate of the 17.9 million tons of general cargo moving through the canal in 1985, some 640,000 tons of refrigerated cargo will move between Europe and Asia,<sup>3</sup> and approximately four million tons of miscellaneous and containerized cargo will move between Asia and Europe.<sup>4</sup> Without taking into consideration the shift of general cargo to other type vessels not as much affected by the change in measurement rules as reefers and general cargo ships, the cumulative increase in tolls paid by those types of ships would probably result in the diversion from the canal to the Suez route of approximately 588 tons of general cargo in addition to the amount of general cargo that would be diverted by a cumulative increase of 50%.<sup>5</sup> It is not considered that the increase in tolls paid by reefer ships would have any effect on bananas moving through the canal in addition to that estimated in the studies for a 50% increase.

### III. Environmental Impact of 50% Tolls Increase

#### A. Background

##### 1. Relationship of Tolls Change to Environment

As developed in Part II of this assessment, the cumulative effect of increases in tolls and changes in the rules of measurement since July 1974, is to increase the tolls paid by users of the Panama Canal by approximately 49.5% and studies made over a period of several years indicate that such an increase would have a minimal effect on traffic through the canal and on the areas involved in canal traffic. Any environmental effect of a change in the rates of tolls charged for the use of the canal would necessarily result from the reaction to the change by the users of the canal. In the case of an increase of less than 50%, the studies indicate that the reaction to the increase will be limited to a relatively small diversion of cargo by use of alternate sources and markets or alternate routes. The amount of such diversion is estimated at 11.5 million tons at the end of a 10-year period. Whether that effect on traffic would result in any impact on the human environment and, if so, whether that impact would be significant within the meaning of NEPA are the questions addressed in this Part.

<sup>1</sup> ERA Projections, Table 58, p. XX-17.

<sup>2</sup> Annual Reports, PCC, 1968, p. 46; 1975, p. 48.

<sup>3</sup> IRA, Oceania, p. 9.

<sup>4</sup> ERA Projections, p. XX-11.

<sup>5</sup> See Table 12, p. 18.

The advantage offered by the Panama Canal is, of course, that of the shorter distances involved between the points of origin and destination of cargo in comparison to the distances involved on routes that do not use the canal.<sup>1</sup> The alternatives available include use of larger ships, use of alternative modes of transport, rearrangement of the existing pattern of commodity movements, rearrangement of resource development and plant location, and adaptation of consumption patterns to the new structure of cost and availability.<sup>2</sup>

In the context of assessing the effect of the use of alternatives on the environment, the significant factors appear to be the effect of use of the alternatives on energy consumption, release of pollutants into the air, pollution of water by oil and other discharges from the ships during the voyage, oil pollution by freight trains on land, and the effect on social or economic conditions in the areas involved in the distribution pattern.

## 2. FMC Docket No. 73-38

In the public proceedings on the 1974 toll increase and on the changes in measurement rules, approved March 23, 1976, the only suggestion that increases in tolls payments of the magnitude there under consideration would adversely affect the quality of the human environment was based on the assumed effect of diversion of cargo from the all-water route through the canal to other routes and transportation systems, including rail transportation across the United States as a result of increases in Panama Canal tolls. This assertion was made jointly by representatives of ports and port associations, principally on the East and Gulf Coast, and by the union representing longshoremen employed in those ports. The assertion that diversions of cargo would result from increases in Panama Canal tolls was not supported by any quantitative analysis or factual showing other than by reference to evidence offered by the same parties in a proceeding before the U.S. Federal Maritime Commission (Docket No. 73-38) involving the legality of intermodal rate schedules applicable to transportation of cargo by water between the United States and Europe and Asia and transportation across the United States by rail. The parties by whom the question was raised in the Panama Canal proceeding on changes in the measurement rules were also involved in the Federal Maritime Commission proceeding and the issues were treated as identical.

In FMC Docket No. 73-38, the complainants are Council of North Atlantic Shipping Associations (CONASA),<sup>3</sup> International Longshoremen's Association, AFL-CIO (ILA), Delaware River Port Authority (DRPA), and Massachusetts Port Authority (MPA). The respondents in Docket No. 73-38 are fourteen common carriers by water listed in the footnote.<sup>4</sup>

In the proceeding on the Panama Canal measurement rules changes, all of the complainants and respondents in FMC Docket No. 73-38 submitted written comments or appeared or were represented

<sup>1</sup> The comparisons are tabulated in Padelford & Gibbs. For convenient reference the tables are reproduced in Appendix C.

<sup>2</sup> IRA, Economic Value. See also, IRA, Maximum Revenues, p. 35; IRA, United States, p. 3, *et seq.*

<sup>3</sup> CONASA is a maritime employer bargaining association whose members are the various shipping associations operating in the ports of Boston; Providence; New York; Philadelphia; Baltimore; and Hampton Roads, Virginia. The ILA represents longshoremen and waterfront employees in the various Atlantic and Gulf ports from Portland, Maine to and including Brownsville, Texas. DRPA has jurisdiction over the Port of Philadelphia, Camden, Gloucester, Marcus Hook, and Paulsboro which are ports generally referred to as "the Port of Philadelphia." MPA has jurisdiction over the waterborne commerce of the Port of Boston.

<sup>4</sup> American Mail Lines, Ltd. (AML), American President Lines, Ltd. (APL), Japan Lines, Ltd. (JL), Kawasaki Kisen Kaisha, Ltd. (K-Line), Mitsui O.S.K. Lines, Ltd. (Mitsui), Nippon Yusen Kaisha, Ltd. (NYK), Orient Overseas Line, Inc. (Orient Line), Pacific Far East Line (PFEL), Phoenix Container Liners, Ltd. (Phoenix), Sea-Land Service, Inc. (Sea-Land), Seatrain Line, Inc. (Sea-train), Showa Shipping Company, Ltd. (Showa), United States Lines, Inc. (USL), Yamashita-Shinnihon Steamship Company, Ltd. (YS), and Zim-Israel Navigation Company, Ltd. (Zim)

at the oral hearing except Orient Line, PFEL, Phoenix, Seatrain, Showa, and Zim. In addition, written and oral comments were submitted by the parties shown in the footnote.<sup>1</sup>

At the hearing on the measurement rules, counsel for CONASA submitted a prepared statement in which he asserted that the toll increases resulting from the rules changes would encourage more substantial movements by mini-landbridge resulting in an increase in the emission of pollutants into the air and wasteful use of energy.<sup>2</sup> In support of this thesis CONASA referred to evidence submitted by CONASA in FMC Docket No. 73-38 and in a suit in the U.S. District Court for the District of Columbia growing out of the FMC proceeding.<sup>3</sup> Specifically, in the Panama Canal measurement rules proceeding, CONASA referred to the diversion in 1972-1973 of an estimated 7,143,651,520 ton miles of cargo to rail in the Far East minibridge service and asserted that the BTU's expended per ton mile range from 750 to 1,000 by rail but only from 350 to 398 by ocean vessel, and that with respect to pollution, the joint rail-water service (minibridge) emits about 23 times as much carbon monoxide, more than 22 times as much hydrocarbon, 25% more particulates, and over 3.7 times as much nitrogen oxides as all-water movements through the canal between New York and Yokohama.

The conclusion drawn from this statistical summary was that joint water-rail transportation on the route between the East Coast United States and the Far East adds to air pollution in the United States and wastes energy in comparison to the all-water movement through the Panama Canal.<sup>4</sup> In the course of oral argument at the hearings counsel for CONASA referred to the report of Edward J. Barber, CONASA's consultant, in regard to the diversion of cargo to the minibridge between the Far East and the East and Gulf coast of the United States. That report, in the form of an affidavit introduced in the FMC proceedings and in the suit in the U.S. District Court, referred to above, appears to be the basis for the comparison between the environmental effects of joint water-rail movements of cargo and an all-water movement via the Panama Canal. That affidavit, along with other affidavits supporting opposing viewpoints in those proceedings, was considered and made part of the record in the Panama Canal Company's proceeding on the measurement rules,<sup>5</sup> and have been reviewed and considered in the course of this assessment. The Barber affidavit and other data submitted in Docket No. 73-38 have also been analyzed and evaluated by the Office of Environmental Affairs, FMC, whose analysis, conclusions and recommendations are set out in the draft Environmental Impact Statement dated December 12, 1975, filed in FMC Docket No. 73-38. That document has been carefully considered along with all other relevant data in the preparation of this assessment.

<sup>1</sup> American Institute of Merchant Shipping (AIMS), American Maritime Association (AMA), Baltic & International Maritime Conference (BIMCO), Council of Forest Industries of British Columbia (COFI), Fernie & Co., Inc. (Fernie), Hapag-Lloyd, A.G. (HL), Intercoastal Steamship Freight Association (ISFA), International Chamber of Shipping (ICS), International Committee of Passenger Lines (ICPL), National Association of Stevedores (NAS), North Atlantic Marine Terminal Lumber Conference (NAMTLC), North Atlantic Ports Association (NAPA), Port Authority of New York and New Jersey (PANYNJ), Puerto Rico (PR), Western Wood Products Association (WWPA), and Weyerhaeuser Company (WC).

<sup>2</sup> Panel Report, App. B, Supp. I, Tab 4, pp. 8 et seq.

<sup>3</sup> Ibid, pp. 9, 10. The suit in the District Court was *Commonwealth of Pennsylvania v. Federal Maritime Commission*, 392 F. Supp. 795 (DDC, 1975) in which the history of the various proceeding involved in the effort to block the intermodal transportation is set out in full. Sea-Land, Service, Inc. was an intervenor-defendant in that suit, opposing the contention of CONASA and ILA that intermodal transportation involving transportation across the United States by rail would have a significant effect on the human environment. The Court entered judgment against the plaintiffs after reaching the conclusion, among others, that "There has been no adequate demonstration of any physical harm or injury to health, plant life, to wildlife or to any other environmentally protected aspect of human environment from minibridge." 392 F. Supp. 795.

<sup>4</sup> Panel Report, App. B, Supp. I, Tab 4, pp. 9, 10.

<sup>5</sup> Panel Report, App. C, "Environmental Data".



In the proceedings on the changes in the Panama Canal measurement rules no showing was made other than that offered by CONASA and ILA in support of the position that increases in tolls resulting from the rules changes would have any effect on the quality of the human environment.<sup>1</sup> Sea-Land Service, Inc., which vigorously opposed the measurement rules changes, joined with CONASA and ILA to the extent of challenging the Panama Canal Company's environmental assessment (Report of Panel, App. A, Tab 26, p. 10) but understandably disassociated itself from the contention that the rules changes would have any significant effect on the human environment, inasmuch as Sea-Land is a respondent in FMC Docket No. 73-38 in which it has taken a position in opposition to CONASA and ILA on the environmental effect of intermodal transportation by rail across the United States.<sup>2</sup>

### 3. *Environmental Impact Statement in Docket No. 73-38*

The Office of Environmental Affairs of the Federal Maritime Commission has prepared a draft Environmental Impact Statement in Docket No. 73-38 that analyzes at length the contention that substitution of intermodal transportation, including rail transportation across the United States, for all-water transportation will result in significant damage to the human environment. The draft assessment concludes that the joint rail-water operations at issue in Docket No. 73-38 are expected to be minimal, and that the service will not have a significant adverse impact on the overall consumption of energy, the ambient air quality, oil pollution and noise exposure; that there is less consumption of energy by the rail-water mode than by the all-water service and that the increase of pollutant emissions over the United States, oil pollution at sea, noise by freight trains are not significant in environmental terms. The EIS also considered the social impact of containerization and joint rail-water cargo movement on the ports of the United States and the workers employed in those ports.<sup>3</sup>

The draft EIS in Docket No. 73-38 sets out at length the methodology employed in evaluation of the various factors involved in the consideration of the effect on the environment of joint rail-water movements of cargo in substitution for all-water transportation. The resources of the U.S. Government were extensively employed in the analysis and no useful purpose is perceived in either duplicating or restating the detailed analysis. Instead, this assessment adopts the basic data developed in the Docket No. 73-38 EIS for use in the assessment of the environmental impact of the increase in rates of tolls under consideration, insofar as much data is applicable and relevant. Appropriate notation of the source of the data used will be made in the course of development of this assessment.

Although the views expressed in the proceeding on the measurement rules changes related primarily to the effect of diversion of Panama Canal cargo on the environment in the United States, all the studies on the effect of a tolls increase on Panama Canal traffic, and all the data otherwise available to the Panama Canal Company in regard to Panama Canal traffic and its sensitivity to tolls increases have been examined to determine whether the tolls increase under consideration would have a significant effect on the quality of the human environment in any area involved in the production and distribution of cargo that now moves through the Panama Canal.

#### B. *Local Effect*

At the site of the canal, such a diversion would have no direct effect on the environment, except a slight diminution of air and water pollution because of the small reduction in number of ships transiting.

<sup>1</sup> Some witnesses expressed general concurrence in the CONASA-ILA position without offering an independent analysis, e.g., Transcript, pp. 214, 218, Panel Report, App. A.

<sup>2</sup> See Panel Report, App. B, Supp. II, Tab. 10; App. C.

<sup>3</sup> The conclusion of the draft EIS is consistent with the findings of the U.S. District Court for the District of Columbia on the same issues. *Commonwealth of Pennsylvania v. Federal Maritime Commission*, 392 F. Supp. 795 (DDC 1975). See footnote 3, page 10, *supra*.

In 1975, 140,101,459 long tons of cargo were carried through the canal on 13,609 commercial ships, an average of 10,295 cargo tons per ship and a daily average of 37.3 transits.<sup>1</sup> Applying this average tonnage per transit, the 11.5 million tons of cargo lost to the canal by 1985 as a result of 50% tolls increase would amount to a reduction of less than 6.2 per cent in the number of ships transiting as projected for 1985 without a tolls increase.<sup>2</sup> A reduction of this proportion would produce no significant effect on the local environment of the Panama Canal.

In the vicinity of the Panama Canal, water and air pollution directly related to shipping would remain essentially unaffected by the projected traffic reduction. Resources required to transit ships and energy expenditures would be relatively insensitive to change of this magnitude but any change would improve the environment. Major engineering projects scheduled on the basis of current tolls and traffic forecasts would not be materially altered. Population shifts due to work force dislocations would not result from the proposed action nor would there be any notable deviation in land use development plans. In short, no significant local changes in environmental quality can be expected from an overall toll increase up to 50%.

### C. General Effects

The general effects on the environment outside the area of the Panama Canal in terms of consumption of energy, air pollution, water pollution and noise, and the economic and social effects of the proposed action on the various components of traffic that would be diverted from the Panama Canal by an increase of 50% in the rates of tolls will be considered in this subpart.

#### 1. Energy Consumption

##### a. Rearrangement of Sources and Markets.

Analysis of the studies of the sensitivity of Panama Canal cargo discloses that of the 11.5 million tons of cargo that the studies estimate would be diverted from the Panama Canal by an increase of 50% in the rates of tolls, some 5,474 long tons, or about half the total diversion, would result from a rearrangement of sources and markets. This effect of the toll increase is regarded as probable for the following commodities:

**TABLE 6**  
**Rearrangement of Sources and Markets Resulting**  
**from 50% Tolls Increase**  
**(By Commodities)**

<u>Commodity</u>	<u>Long Tons</u> <u>(Thousands)</u>
1. Bananas	632
2. Iron Ore	627
3. Petroleum	2,388
4. Petroleum products	1,632
5. Iron and steel manufactures	195
Total	5,474

The reaction to a tolls increase by rearranging sources and markets in effect eliminates the necessity for moving the cargo involved from one ocean to the other thereby reducing energy consumption that otherwise would be used for that purpose. Obviously, in this aspect, the effect of the proposed increase in tolls is beneficial to the environment.

<sup>1</sup> Commercial ocean traffic paying tolls, excluding small vessels, U.S. Government vessels, and vessels assessed tolls on displacement. See Appendix B.

<sup>2</sup> Total transits are projected to increase to 18,091 in 1985. ERA Projections, p. II-10.

Between the English Channel and Yokohama the distance is about 1,250 miles shorter via the Suez Canal than via the Panama Canal. From the English Channel to Sydney, Australia, the distance is about 850 miles shorter via Suez than via Panama and the differential is greater for ports west of Sydney. The route from the Channel to Sydney via the Cape of Good Hope is about 160 miles further than via the Panama Canal.<sup>1</sup> The distance to Yokohama from the Mediterranean via Suez is 4,126 miles shorter than the route via the Panama Canal.<sup>2</sup>

b. *Diversion via Suez or Cape of Good Hope*

Analysis of the sensitivity studies made for the Panama Canal Company shows that a 50% increase in Panama Canal tolls will result in the diversion of the following commodities to routes through the Suez Canal or around the Cape of Good Hope.

**TABLE 7**  
Division of Commodities from  
Panama Canal to Suez or Cape of Good Hope resulting from  
50% Increase in Panama Canal Tolls (1985)

<u>Commodity</u>	<u>Tonnage</u>	<u>Trade Route</u>	<u>Via</u>
General Cargo	1,201 <sup>o</sup>	Europe-Japan-Aus.	Suez
Miscellaneous ores	93	Europe-Australia	Cape of Good Hope
Iron & steel manufactures	186	Europe-Japan	Suez
Phosphates	423	Africa-Japan	Suez
Coal	1,540	US-Japan	Cape of Good Hope
Coarse grains & wheat	1,894	US-Japan	Cape of Good Hope
Soybeans	741	US-Japan	Cape of Good Hope
Sugar	116	Philippines-NY	Cape of Good Hope
Total	<u>6,194</u>		

(1) *Europe-Far East & Oceania.* Because of the shorter distances involved, the movements of general cargo, miscellaneous ores, iron and steel manufactures, and phosphates, aggregating 1,315 tons, between Europe and Japan, Africa and Japan, and Europe and Australia, via Suez or the Cape of Good Hope, will result in less fuel consumption than would movement of the cargo through the Panama Canal.

**TABLE 8**  
Cargo Diversions Involving Voyages of Decreased Length  
Via Suez Canal or Cape of Good Hope

<u>Commodity</u>	<u>Tonnage</u>	<u>Trade Route</u>	<u>Decreased Distance on Diversion Route</u>
General cargo	1,201 <sup>o</sup>	Europe-Japan (Suez)	1,251
Miscellaneous ores	93	Europe-Australia (Cape)	1,558
Iron & steel manufactures	186	Europe-Japan (Suez)	1,251
Phosphates	423	Africa-Japan	4,126
Total	<u>1,903</u>		

<sup>1</sup> IRA, United States, pp. 3-14.

<sup>2</sup> See Appendix C.

<sup>o</sup> Includes 588 tons assuming full impact of cumulative increase on reefers and general cargo ships without consideration of shift of cargo to container ships and bulk carriers. See pp. 7, 8.

(2) *U.S.—Japan (via Cape of Good Hope)*. The bulk movement of coarse grains and wheat, and soybeans is between New Orleans and Japan. The distance between New Orleans and Yokohama is 9,126 miles via the Panama Canal, and 15,762 miles via the Cape of Good Hope, a difference of 6,636 miles. The movement of 2,635,000 tons of soybeans and coarse grains and wheat via the Cape of Good Hope would entail about 16 voyages by a bulk carrier of 183,570 deadweight tons lifting approximately 170,000 tons of cargo. Each voyage would require about 42.4 days and fuel consumption at 15 knots would be 101.5 tons a day. A ship of the maximum size able to use the Panama Canal, about 76,500 tons, carrying 71,000 tons of cargo would use 60 tons of fuel per day on a voyage of 26.7 days via the Panama Canal. Total fuel consumption for the 183,570 ton ship (42.4 x 101.5) would be 4,304 tons per voyage compared to 602 tons for the voyage of the 76,500 ton carrier via the Panama Canal. The 2,635,000 tons of cargo would require about 16 voyages by the 183,570 ton ship and some 37 voyages by the smaller ship via the Panama Canal, so that the additional fuel consumption for the movement of the cargo by way of the Cape of Good Hope on the larger ship would be on the order of 9,590 tons of fuel.

(2) *Coal (Cape of Good Hope)*. Diversion to the Cape of Good Hope of coal movements from Newport News (Norfolk, Va.) to Japan also is an extension of a trend already well established, capitalizing on the advantages of the use of larger bulk carriers even though the distances involved is greater than that traversed by smaller ships using the Panama Canal. The distance from Newport News to Yokohama is 9,604 miles via the Panama Canal, 13,185 miles via Suez, and 15,270 miles via the Cape of Good Hope, so that the Panama route is 3,581 miles shorter than the Suez route and 5,666 miles shorter than via the Cape of Good Hope.

In fiscal year 1975, 26 million tons of coal moved through the canal and the total tonnage projected for 1985 without a tolls increase is 14 million tons. A 50% tolls increase would result in diversion of about 1,540,000 tons to the Cape route. The maximum size bulk carrier that can transit the Panama Canal is one of about 76,500 DWT with a cargo capacity of approximately 71,000 tons.<sup>1</sup> Therefore, the 1,540,000 tons estimated as the amount of traffic diverted to the Cape route by a 50% toll increase would require 22 transits of bulk carriers of the maximum size that can use the Panama Canal. The movement of the same tonnage of coal via the Cape of Good Hope would require only 12.7 voyages by a bulk carrier of 137,000 DWT with a cargo capacity of some 121,000 tons out of Newport News.<sup>2</sup>

A 76,500 DWT bulk carrier at a speed of 16 knots requires 25 days at sea on a direct voyage from Newport News to Yokohama, via the Panama Canal, exclusive of the time spent in transiting the canal. A ship of that size uses 60 tons of fuel a day so that the total fuel consumption per voyage is 1,500 tons. For the 22 voyages required to move 1,540,000 tons of total fuel consumption would be approximately 33,000 tons.

A bulk carrier of about 137,000 DWT at a speed of 15.8 knots requires 40.3 days on a direct voyage from Newport News to Yokohama via the Cape of Good Hope. A carrier of that size uses 97 tons of fuel a day so that the total fuel consumption per voyage is 3,909 tons. For the 12 voyages required to move 1,540,000 tons the total fuel consumption would be about 46,908 tons. The additional fuel consumption involved in the movement of 1,540,000 tons of coal via the Cape of Good Hope instead of through the Panama Canal is 13,908 tons.

<sup>1</sup> The largest coal cargo to transit the canal to date was 61,078 tons on the MELODIC.

<sup>2</sup> The limiting factor on the tonnage per voyage is the depth of the harbor at Newport News where the maximum draft is 46.6 feet. A planned deepening will change the draft limitation to 55 feet with corresponding increases in the load factor. ERA Projections, p. XV-5.

In comparison to the total tonnage of world seaborne coal traffic of 157,000,000 tons,<sup>1</sup> the difference in fuel consumption of some 13,908 tons for the change in routing for 1,540,000 tons of coal as a result of a 50% tolls increase is not regarded as environmentally significant.

(3) *Philippines to New York*. The studies made for the Panama Canal Company estimate that of the six million tons of sugar that would move through the canal in 1985 in the absence of any increase in tolls, some 116,000 tons that would move through the canal on the route between the Philippines and New York would be diverted to a route around the Cape of Good Hope as the result of an increase of 50% in the rates of Panama Canal tolls. The route from the Philippines to New York via the Cape is about 2,155 miles longer than the route via the Panama Canal.<sup>2</sup>

A 52,000 DWT bulk carrier with a cargo capacity of some 48,000 tons could move the 116,000 tons via the Cape of Good Hope in 2.4 voyages, for a total of 6,465 miles of added distance in comparison to the route of the same ship via the Panama Canal. At 15 knots the 52,000 carrier would make about 360 miles a day, requiring about 18 days for the additional distance involved in the three voyages. At that speed the ship would use about 40 tons of fuel a day, so that the increased fuel consumption resulting from the diversion to the Cape route of 116,000 tons of sugar would be about 738 tons of fuel.

#### c. *Diversion via Cape Horn*

(1) *Iron ore*. The effect of a 50% increase in the rates of tolls on shipments of iron ore through the canal is estimated to be the diversion to a route around Cape Horn of some 165,000 tons of ore from the west coast of South America to the United States and Europe. This is about four voyages for an ore carrier of 45,000 DWT of the type now used for moving ore through the canal and an insignificant portion of the 409 million tons of world seaborne iron ore trade.<sup>3</sup> Of the total 2 million tons of iron ore exports from the west coast of South America projected for 1985, approximately  $\frac{2}{3}$  would move to the U.S. and  $\frac{1}{3}$  to Europe. Dividing the total diversion of 165,000 tons in that proportion, approximately 109,000 tons would move to the U.S. and 56,000 tons to Europe.

(a) *Valparaiso to Baltimore*. The distance from Valparaiso to Baltimore is 4,560 miles via the Panama Canal and 8,434 miles via Cape Horn, a differential of 3,874 miles in favor of the Panama route. A 53,263 DWT ore carrier could move the 109,000 tons of ore diverted to the Cape Horn route in 2.04 voyages. At 15.5 knots the ship would cover 322 miles a day, requiring 12.25 days for the trip via Panama and 22.67 days for the voyage via Cape Horn. A 53,000 DWT ore carrier at 15.5 knots uses 57 tons of fuel a day so that the fuel consumption per voyage would be 698 tons.

(b) *Valparaiso-Europe*. The distance from Valparaiso to Bishop's Rock (for European ports) is 6,960 miles via the Panama Canal and 8,451 miles via Cape Horn, a differential of 1,491 miles in favor of the Panama route. A 53,263 DWT ore carrier could move the 56,000 tons of iron ore diverted to the Cape Horn route in 1.13 voyages. At 15.5 knots the carrier would cover 372 miles a day, requiring 19 days for the voyage via Panama and 23 days for the voyage around Cape Horn. Fuel consumption at 57 tons a day would be 1,083 tons for the Panama route and 1,311 tons for the Cape Horn route, a difference of 228 tons for the movement of the 56,000 tons of cargo.

By any standard of comparison this is not regarded as a significant difference in energy consumption.

#### d. *U.S. Rail Transportation*

As indicated previously, in the proceeding on the proposal to change the rules of measurement for the Panama Canal, the contention was made that the environment would be adversely af-

<sup>1</sup> ERA, Projections, p. XV-5.

<sup>2</sup> HO Pub. 151.

<sup>3</sup> See ERA, Projections, p. XII 7-9.

<sup>4</sup> IRA, South America, p. 7.

ected by increased use of rail transportation across the United States of cargo that would be diverted to that route as a result of increases in tolls resulting from the rules changes, particularly the proposed new rule providing for inclusion in net tonnage of space occupied by deck cargo.<sup>1</sup> The contentions in that regard were based on the assumption that substantial quantities of cargo now moving through the Panama Canal between Europe and the Far East, the United States and Japan, and the East and West Coasts of the United States (intercoastal) would be diverted to rail. Insofar as concerns the traffic between Europe and the Far East and between the U.S. and Japan, the issues are substantially the same as those involved in FMC Docket 73-38.<sup>2</sup>

A factor that militates against the conclusions that Panama Canal toll increase of 50% would result in substantial diversion of cargo to routes using rail transportation across the United States is the fact that U.S. railroad rates are being increased at a faster rate than Panama Canal toll rates. U.S. railroad rates have increased nationally 95% since 1967 on a cumulative basis and in successive increments aggregating 38% since 1974,<sup>3</sup> in comparison to increases in Panama Canal rates, including the present proposal, of 49.5% since 1912 as outlined at page 3.

(1) *Europe-Far East land bridge.* The assumption that traffic between Europe and the Far East now moving through the Panama Canal would be diverted to intermodal transportation across the United States is not confirmed by the studies made for the Panama Canal Company. As shown above at page 25, the alternate route for this traffic is via the Suez Canal or around the Cape of Good Hope, in view of the shorter distances involved.

(2) *Intercoastal traffic.* Intercoastal traffic comprises a small part of total Panama Canal traffic.<sup>4</sup> The studies made for the Panama Canal uniformly conclude that intercoastal traffic through the canal is not sensitive to increases of 50% in Panama Canal tolls,<sup>5</sup> and this conclusion is confirmed by comparison of increases in rail rates with increases in Panama Canal rates as noted above.

(3) *Asia-East Coast United States.* The studies made for the Panama Canal indicate that as the result of a 50% increase in Panama Canal tolls there will be some diversion to rail transportation of part of the cargo now moving from Asia to the East Coast of the United States. Because of the saving in time and distance involved, and active promotion by containership operators of a joint rail-water fare between Asia and the East Coast U.S. (Far East minibridge) some cargo is already moving on that route as an alternate to all water transportation via the Panama Canal.<sup>6</sup>

The effect of a 50% increase in Panama Canal tolls insofar as concerns diversion to the Far East minibridge is limited to movements of sugar from Hawaii<sup>7</sup> and iron and steel manufactures<sup>8</sup> in the quantities shown in Table 9:

<sup>1</sup> The deck cargo rule was not approved by the President. See 41 FR 13582.

<sup>2</sup> See pages, 9-11 above.

<sup>3</sup> See AAR Economics & Finance Department: *Estimated Average General Increases in Railroad Interstate Freight Rates, etc.*, attached as Appendix D. An increase of 7% effective in 1976 (Ex parte 318) is not shown in the AAR tabulation. The history of Panama Canal toll rates is set out at length in the Company's Measurement Rules Proposal, p. 4.

<sup>4</sup> 4,248,000 long tons in 1975.

<sup>5</sup> IRA, United States, p. IV-14.

<sup>6</sup> The minibridge operation is described at length in FMC Docket 73-38, EIS, pp. 26 *et seq.*

<sup>7</sup> IRA, United States, p. 8-1.

<sup>8</sup> *Ibid.*, p. 20-1.

**TABLE 9**  
**Diversion of Cargo to Far East Minibridge by 50% Increase**  
**in Panama Canal Tolls (1985)**  
**(Thousands of Tons)**

<u>Commodity</u>	<u>Route</u>	<u>Tons Diverted</u>	<u>Total Thru PC</u>
Sugar	Hawaii—U.S.	68	5,943
Iron & steel manufactures	Japan—U.S.	196	10,966
Total		264	16,909

Ships carrying cargo between Japan and East Coast United States ports may proceed directly from Japan to East Coast U.S. via the canal, or move from Japan to the West Coast U.S. and thence to East Coast U.S. via the canal. Cargo moving by the minibridge route moves from Japan to the West Coast U.S. by water and from there to the East Coast by rail. Movements from the East Coast U.S. to Japan follow the reverse pattern. Whether the all-water movement is direct between the East Coast and Japan or via intermediate West Coast ports, the shorter distance involved in the intermodal movement using rail transportation across the United States, results in a substantial saving in energy consumption in the use of that route in comparison to the all-water routes<sup>1</sup>. The distance between Yokohama and New York on the all-water routes indicated is shown in the following table:

**TABLE 10**  
**Distances Yokohama to New York on All-Water Routes**  
**Via Panama Canal**

<u>Route</u>	<u>Statute Miles</u>
Direct Yokohama-New York	11,115
Yokohama-San Francisco	5,261
Yokohama-Los Angeles	5,565
San Francisco-New York	6,053
Los Angeles-New York	5,671
Total Yokohama-New York (via SF)	11,269
Total Yokohama-New York (via LA)	11,236

(Source: H.O. Doc 151, with nautical miles converted to statute miles at ratio of 1:1.15.)

The distance between Yokohama and New York using rail transportation across the United States is 8,386 miles via San Francisco and 8,647 via Los Angeles. The saving in distance by use of the minibridge in comparison to the all-water routes is shown in Table 11:

**TABLE 11**  
**Net Difference in Distance, Far East Minibridge and**  
**All-Water Routes**

<u>Route</u>	<u>Miles</u>	<u>% Difference</u>
Yokohama-New York Direct		
—Minibridge from S.F.	2,729	25
—Minibridge from L.A.	2,465	22
Yokohama-New York Indirect		
—Via San Francisco	2,883	26
—Via Los Angeles	2,589	23

<sup>1</sup> See FMC Docket 73-38, EIS, p. 79.

The effect of the entire Far East minibridge operation in terms of energy consumption, as well as other aspects of the effect of minibridge on the environment has been exhaustively analyzed and documented in the Environmental Impact Statement filed in FMC Docket 73-38. This analysis demonstrates that rail transportation consumes fewer BTU's per ton mile than all-water transportation, except in the case of one class of vessel, and that the total consumption of fuel, without exception, is less on the intermodal route than on the all-water routes because of differences in distance between New York and the West Coast ports.<sup>1</sup>

e. *Summary—Energy Consumption*

The effect of a 50% increase in tolls on energy consumption will be limited to that part of the Panama Canal cargo that would be diverted to other routes as a result of the tolls increase, a total of 6,035,000 tons. Of this number, 2,080,000 tons will be diverted to routes over which the distance is shorter than that involving use of the Panama Canal.

**TABLE 12**  
Cargo Diversions Involving Routes of Decreased Length

<u>Commodity</u>	<u>Tons (000)</u>	<u>Trade Routes</u>	<u>Decreased Distance on Diversion Route</u>
General cargo	1,201*	Europe-Japan	1,251**
Miscellaneous ores	93	Europe-Australia	1,558**
Iron and steel manufact.	186	Europe-Japan	1,251**
Iron and steel manufact.	196	U.S.-Japan (minibridge via SF)	2,729***
Phosphates	423	Africa-Japan	4,126**
Sugar	68	Hawaii-U.S. (minibridge via SF)	2,729***
Total	2,080		

\* Includes 588 tons assuming full impact of cumulative increase on reefers and general cargo ships without consideration of shift of cargo to container ships and bulk carriers. See pp. 7-8.

\*\* Nautical miles.

\*\*\* Statute miles.

Diversion of the remaining 4,456,000 tons will result in longer voyages, and hence greater fuel consumption, estimated at some 20,776 tons.

**TABLE 13**  
Cargo Diversions Involving Voyages of Increased Length

<u>Commodity</u>	<u>Tons (000)</u>	<u>Trade Route</u>	<u>Increased Distance on Diversion Route*</u>
Iron ore	109	South America-U.S.	3,874
Iron ore	56	South America-Europe	1,491
Coal	1,540	U.S.-Japan	5,666
Coarse grains and wheat and soybeans	2,635	U.S.-Japan	6,636
Sugar	116	Philippines-U.S.	2,400
	4,456		

\* Nautical miles.

<sup>1</sup> See FMC Docket 73-38, EIS, pp. 38-81, and Appendices D and E of the EIS.



In comparison to the overall fuel required for the movement of four billion tons of cargo moving in the world's ocean borne traffic, the additional fuel consumption resulting from a 50% increase in Panama Canal tolls is not regarded as significant.

## 2. Air Pollution

a. *Diversion to minibridge.* As developed in the preceding part of this assessment concerning energy consumption, it is estimated that about 264 thousand tons of Hawaiian sugar and iron and steel manufactures may be diverted to rail transportation across the United States by an increase of 50% in Panama Canal tolls.

The effect of diversion of cargo from all-water routes to the Far East minibridge has been exhaustively examined in the proceedings in FMC Docket 73-38 and the results of that analysis are set out fully in the Environmental Impact Statement filed in that proceeding. That proceeding involves cargo movements across the United States by rail aggregating 689,550 tons of cargo in 1973.<sup>1</sup> By tonnage, minibridge shipments constitute .00006 of railroad freight movement in the United States.<sup>2</sup> Although a "precise calculation of emissions attributable to minibridge is not possible because it cannot be identified as a separate movement and it comprises only a very small part of IC traffic,"<sup>3</sup> application of EPA's 1972 emission factors to the fuel consumption estimated for minibridge produced 2,891 short tons of air polluting emissions as follows:

TABLE 14  
Emission by Far East Minibridge Nationwide

	Emissions in Lbs./Gal.	Short Tons Emitted
CO	.130	546
HC	.094	395
NO <sub>2</sub>	.370	1,554
SO <sub>2</sub>	.057	239
Particulates	.025	105
HCHO	.0055	23
Organic Acids	.007	29
Total		2,891

Source: FMC Docket 73-38, EIS, p. 89.

The addition of the Panama Canal diversion (264,000 tons) to the 1973 minibridge traffic (689,550) produces a total of 953,550 tons of freight, an increase of 38%. If the air pollution produced by the 1973 minibridge operation is increased by 38% the resultant amount of air pollutant attributable to the entire operation (based on the 1973 minibridge tonnage) is 1098.58 tons. In comparison, the total nationwide emissions of pollutants from all sources in 1973 was 205,200,000 tons, of which transportation, including automobiles (90%), produced 98,300,000 tons or approximately 48% of the total.<sup>4</sup> Emissions from U.S. freight trains have amounted to only one percent of the national emissions from transportation.<sup>5</sup>

The conclusion reached by the Office of Environmental Affairs of the Federal Maritime Commission was that the increase in pollution emissions over the span of the United States from the

<sup>1</sup> Docket No. 73-38, EIS, p. 64.

<sup>2</sup> Ibid., p. 85.

<sup>3</sup> Ibid., p. 84.

<sup>4</sup> Docket No. 73-38, EIS, p. 88.

<sup>5</sup> Ibid.

Far East minibridge would not be significant in environmental terms, and the same conclusion follows in regard to the emissions resulting from the rail transportation of the additional 264,000 tons of Panama Canal cargo diverted to minibridge.

b. *Diversion to longer water routes.* The tonnage of cargo that would be diverted by a 50% increase in Panama Canal tolls to water routes that are longer than the route via the Panama Canal is shown in Table 13 at page 18.

Although operation of steamships burning fuel oil, and motor ships burning diesel oil, produces air pollutant emissions, particularly while at dock side, data developed by the Environmental Protection Agency and the Department of Transportation indicate that emissions of carbon monoxide and hydrocarbons by both types of vessels are insignificant and that the marine shipping industry is not a significant contributor to air pollution.<sup>1</sup>

In consideration of the effect on air pollution of the diversion of cargo to longer routes as a result of a 50% increase in Panama Canal tolls, there must also be taken into account the offsetting effect of reduction in canal traffic and ocean borne trade of some 5,474,000 cargo tons as the result of rearrangement of sources and markets,<sup>2</sup> and an additional 2,080,000 tons as the result of diversion to routes shorter than that via the Panama Canal.<sup>3</sup> Thus, although some 4,456,000 tons of cargo will be diverted to longer routes 7,053,588 tons will either move on shorter routes or will be eliminated from ocean commerce.

It follows that the net effect of a 50% increase in Panama Canal tolls on vessel emissions into the air would be negligible.

### 3. *Marine and Land Oil Pollution.*

a. *Marine oil pollution.* The diversion of cargo to longer water routes as a result of a 50% increase in Panama Canal tolls, (Table 13) would, to a certain extent, increase the amount of bilge and ballast water on the longer voyages involved.<sup>4</sup> The diversion of this cargo would also slightly increase the danger of accidental oil spillages which are not regarded as a significant source of marine pollution.<sup>5</sup> Even these slight effects would be dissipated over a greater area than that involved in moving the same cargo through the Panama Canal, and in considering the overall environmental effect of the toll increase they would be entirely offset by the reduction of other traffic resulting from rearrangement of sources and markets (5,474,000 tons)<sup>6</sup> and diversion of cargo to shorter routes (2,080,000 tons).<sup>7</sup> When the amount of cargo diverted to longer routes is compared to the tonnage moving in world ocean trade (4 billion tons) it is apparent that any water pollution resulting from the toll increase would be insignificant.

b. *Land oil pollution by railroads.* Although some land oil pollution results from railroad spillage, principally incidents involving rail tank cars, the Environmental Impact Statement in FMC Docket 73-38 demonstrates that land oil pollution by freight rail operations in the United States does not pose a significant threat to the quality of the human environment.<sup>8</sup> This conclusion applies to the movement by rail of the estimated 264,000 tons of Panama Canal cargo diverted to the minibridge by a 50% increase in Panama Canal tolls.

<sup>1</sup> FMC Docket 73-38, EIS, p. 83, citing U.S. Environmental Protection Agency, *Compilation of Air Pollutant Emission Factors*, Feb., 1972 (rev. ed.) and DOT Systems Center, *USCG Pollution Abatement Program: Preliminary Study of Vessel and Boat Exhaust Emission*, (1973).

<sup>2</sup> *Supra*, p. 12.

<sup>3</sup> Table 12, p. 18, *supra*.

<sup>4</sup> "In 1970 the estimated annual oil pollution of the oceans from vessels 'other than tankers' from bilge ballasting and cleaning was approximately 292,481 metric tons." FMC Docket 73-38, EIS, p. 96.

<sup>5</sup> *Ibid.*, p. 95.

<sup>6</sup> Table 6, p. 12, *supra*.

<sup>7</sup> Table 12, p. 18, *supra*.

<sup>8</sup> FMC Docket 73-38, EIS, p. 96.

#### 4. Noise Pollution.

a. *Ships.* A study for the Environmental Protection Agency has concluded that insofar as concerns noise involved in transportation systems, ships are the least important in terms of environmental impact on the community in general.<sup>1</sup> The movement of the 4.5 million tons of cargo over the increased distances involved in the diversion of Panama Canal cargo to longer routes as a result of a Panama Canal tolls increase (Table 13) cannot be regarded as producing a significant effect on the quality of the human environment.

b. *Railroads.* The same would be true of the effect of diversion of 264,000 tons of cargo to rail transportation across the United States by minibridge (Table 9). The noise levels produced by moving trains are analyzed in the EIS in FMC Docket 73-38, which concludes that the minibridge cargo moving on scheduled trains would have no additional effect on the impact of noise pollution on the human environment beyond that arising from additional flat cars attached to scheduled trains.<sup>2</sup> The addition of 264,000 tons of cargo to U.S. transcontinental rail traffic is not regarded as producing any significant effect on the quality of the human environment.

#### 5. Social and Economic Effects

The studies of sensitivity of Panama Canal traffic to increases of 50% or less in rates of canal tolls conclude that the economic effect of such an increase on every area involved in the pattern of production and distribution of cargo now moving through the canal will be minimal.<sup>3</sup> The total amount of traffic diverted is not a substantial portion of the traffic in any of the affected commodities in comparison to total world or U.S. ocean borne commerce, or even in terms of the economies of some relatively small countries to or from which cargo moves through the canal. The increase in toll rates may produce some price increases in countries whose imports move through the canal, but there has been no indication that such price increases would be major in amount or significant in effect.

Although the economic effects of a toll increase of less than 50% are regarded as generally significant, this is not to say that there may not be some derivative adverse economic effect on individual employees, areas, or industries. For example, it has been pointed out in the various studies that shipments of bananas are quite sensitive to tolls increases of 50% and that such a rate increase might possibly lead to some relocation of the areas used for production of bananas in Central and South America, along with other readjustments in marketing patterns.<sup>4</sup> The probability of such reactions are highly speculative in nature and are not susceptible of being quantified at this distance in time when few of the variables affecting the problem can be determined. In any event, in the case of banana shipments, the amount of cargo lost to the canal, distributed over all banana producing countries is estimated at only 632,000 tons out of a possible 2,342,000 projected as the Panama Canal tonnage in 1985 without a tolls increase, so that the economic impact in any one area of production would of necessity be small and the effect on the environment insignificant.

The effect of the tolls increase on the Atlantic and Gulf ports of the United States and on the longshoremen and stevedores employed in these ports merits special consideration because of the strong representations made in the course of the rulemaking proceedings involved in the 1976 changes in the measurement rules.<sup>5</sup>

In those proceedings representatives of International Longshoremen's Association adopted CONASA's conclusions that the increase in tolls involved in the measurement rules changes would

<sup>1</sup> Wyle Laboratories for EPS, *Transportation Noise and Noise from Equipment Powered by Internal Combustion Engines*, No. NTID 300.13, Dec. 31, 1971, quoted in FMC Docket 73-38, EIS, p. 100.

<sup>2</sup> FMC Docket 73-38, EIS, p. 99.

<sup>3</sup> IRA, United States, p. 7-1.

<sup>4</sup> For detailed analysis of the overall economic effect of tolls increases on the various areas affected see the series of reports cited in footnote 1, p. 6, *supra*.

<sup>5</sup> See the background discussion of the environmental issues raised in those proceedings at p. 9, *et seq.*, *supra*.

result in a substantial diversion of Panama Canal traffic to the Far East minibridge,<sup>1</sup> and opposed the rules changes because of the effect of the diversion on the employment, compensation and pension rights of longshoremen employed in the affected ports.<sup>1</sup> As previously indicated, the same position as to the effect on the social environment of the Far East minibridge has been urged in FMC Docket 73-38 and related proceedings. The draft Environmental Impact Statement filed in the FMC Docket analyzes the effect of the Far East minibridge in more detail than that presented in the proceedings on the Panama Canal measurement rules change.

That analysis discloses that the "container revolution," which has seen containerized traffic doubling in the period 1970-1973, has caused a reduction in the labor intensive methods of handling cargo and employment of longshoremen, as indicated by a 38% drop in employment of longshoremen between 1968 and 1973; that this drop in employment affects the financing of guaranteed annual income programs of longshore workers in the major ports; and that these detriments are only partially offset by container royalty provisions and rules requiring that certain categories of containers be stuffed and stripped by longshoremen.<sup>2</sup>

In 1973, a total of 9,418,138 tons of containerized cargo moved through the ports of New York, Philadelphia, and Baltimore.<sup>3</sup> The number of tons estimated as the tonnage diverted from all-water movements to minibridge from mid-1972 through 1973, is 866,748 tons, including containers. As previously indicated, the studies made for the Panama Canal indicate that by 1985 a 50% increase in Panama Canal tolls would result in the diversion to minibridge of about 264,000 tons of cargo. Using the average of 2,665 miles for the distance between Los Angeles and ten Atlantic and Gulf ports, the diverted Panama Canal cargo produces a total of 703,560,000 ton miles compared to the 1972-1973 minibridge total of 2,310,415,088 in the 18 month period mid-1972 through 1973.<sup>4</sup> It is obvious that minibridge, before the increases in Panama Canal rates of tolls, was making a substantial difference in port operations with consequential effect on longshore employment in the ports. The basic reasons for this change in transportation patterns lies in the technicological advantages of intermodal transportation used by the shipping lines in promotion of minibridge. It is equally obvious that 50% increase in Panama Canal tolls rates would contribute to the growth of intermodal transportation but the effect of that contribution cannot be quantitatively assessed.<sup>5</sup> In view of all the factors involved, however, the effect on Atlantic and Gulf ports of the diversion of Panama Canal cargo as a result of a 50% increase in Panama Canal tolls is not regarded as a significant impact on the quality of the human environment within the meaning of NEPA.

<sup>1</sup> Panel Report, App. B, pp. 193 *et seq.*; App. B, Supp. 1, Tab 8, p. 3.

<sup>2</sup> FMC Docket 73-38, EIS, pp. 102, 103.

<sup>3</sup> FMC Docket 73-38, EIS, p. 101.

<sup>4</sup> Barber Affidavit, FMC Docket 73-38, reproduced in Panel Report, App. C, Tab 2.

<sup>5</sup> Barber Affidavit, p. 10.

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**EFFECT ON TOLLS PAYMENTS OF CHANGES IN  
MEASUREMENT RULES**

March 23, 1976

By Vessel Types

<u>Vessel Type</u>	<u>Average % Increase in Tolls Payments</u>
Passenger . . . . .	27.7
Reefer . . . . .	9.7
General cargo . . . . .	8.5
Container-Breakbulk . . . . .	4.5
Vehicle-Dry bulk carrier . . . . .	3.5
Liquid gas carrier . . . . .	3.1
Vehicle carrier . . . . .	1.5
Tanker . . . . .	1.4
Container ship . . . . .	1.4
Dry Cargo—Liquid bulk carrier . . . . .	.9
Weighted average, ships other than passenger . . . . .	4.2
Average, all ships . . . . .	4.5

**TABLE 6**  
**Panama Canal Traffic—Fiscal Years 1965 Through 1975**

Fiscal Year	Total Traffic			Traffic Assessed Tolls on Net Tonnage Basis		Traffic Assessed Tolls on Displacement Tonnage Basis	
	Number of Transits	Tolls	Long Tons of Cargo	Number of Transits	Panama Canal Net Tonnage	Number of Transits	Displacement Tonnage
<b>COMMERCIAL OCEAN TRAFFIC<sup>1</sup></b>							
1965	11,834	\$ 65,442,633	76,573,071	11,777	74,734,814	57	208,205
1966	11,925	69,095,129	81,703,514	11,859	78,912,824	66	218,092
1967	12,412	76,768,065	86,193,430	12,366	88,266,343	46	166,242
1968	13,199	83,907,062	96,550,165	13,142	96,487,843	57	220,411
1969	13,146	87,423,430	101,372,744	13,094	100,558,452	52	167,968
1970	13,658	94,654,468	114,257,260	13,608	108,141,640	50	158,952
1971	14,020	97,380,036	118,626,906	13,977	111,006,383	43	172,074
1972	13,766	98,764,959	109,233,725	13,714	112,971,058	52	214,681
1973	13,841	111,032,088	126,104,029	13,796	126,203,549	45	152,025
1974	14,033	119,422,568	147,906,914	13,984	135,715,628	49	200,376
1975	13,609	141,898,218	140,101,459	13,565	135,053,680	44	171,006
<b>U.S. GOVERNMENT OCEAN TRAFFIC<sup>1</sup></b>							
1965	284	\$ 1,647,653	1,923,538	216	1,733,736	68	332,827
1966	591	3,446,219	3,220,190	479	3,682,335	112	494,479
1967	879	5,484,566	6,147,479	782	6,044,162	97	419,701
1968	1,504	9,206,815	8,497,221	1,368	10,421,084	136	719,247
1969	1,376	8,418,421	7,210,068	1,271	9,601,638	105	491,733
1970	1,068	6,218,541	4,410,451	964	7,067,828	104	497,216
1971	503	3,144,376	2,236,619	452	3,477,803	51	297,859
1972	413	2,651,281	1,742,303	368	2,913,307	45	250,203
1973	373	2,285,727	1,405,428	311	2,478,646	62	303,033
1974	248	1,831,535	1,748,963	218	2,021,966	30	142,807
1975	170	1,376,797	526,497	148	1,287,777	22	122,953
<b>FREE OCEAN TRAFFIC<sup>12</sup></b>							
1965	85		403,920	82	452,191	3	8,030
1966	85		378,626	73	405,221	12	31,050
1967	94		642,882	88	704,153	6	26,760
1968	104		482,483	94	511,278	10	22,516
1969	80		204,065	70	276,236	10	24,153
1970	103		234,689	89	314,875	14	31,090
1971	94		139,775	74	166,779	20	37,030
1972	59		62,532	46	76,750	13	23,275
1973	24		12,810	14	42,633	10	20,640
1974	23			11	56,364	12	27,244
1975	7			2	694	5	10,400
<b>TOTAL OCEAN TRAFFIC<sup>1</sup></b>							
1965	12,203	\$ 67,090,286	78,900,529	12,075	76,920,741	128	549,062
1966	12,601	72,541,348	85,302,330	12,411	83,000,380	190	743,621
1967	13,385	82,253,171	92,983,791	13,236	95,014,658	149	612,703
1968	14,807	93,113,877	105,529,869	14,604	107,420,205	203	962,174
1969	14,602	95,841,851	108,786,877	14,435	110,436,326	167	683,854
1970	14,829	100,873,009	118,902,400	14,661	115,524,343	168	687,258
1971	14,617	100,524,412	121,003,300	14,503	114,650,965	114	506,963
1972	14,238	101,416,240	111,038,560	14,128	115,961,115	110	488,159
1973	14,238	113,317,815	127,522,267	14,121	128,724,828	117	475,698
1974	14,304	121,254,103	149,655,877	14,213	137,793,958	91	370,427
1975	13,786	143,275,015	140,627,956	13,715	136,342,151	71	304,359

See footnotes at end of table.



TABLE 6

## Panama Canal Traffic—Fiscal Years 1965 Through 1975—(Continued)

Fiscal Year	Total Traffic			Traffic Assessed Tolls on Net Tonnage Basis		Traffic Assessed Tolls on Displacement Tonnage Basis	
	Number of Transits	Tolls	Long Tons of Cargo	Number of Transits	Panama Canal Net Tonnage	Number of Transits	Displacement Tonnage
SMALL COMMERCIAL TRAFFIC <sup>1</sup>							
1965	577	\$ 53,786	20,698	568	62,707	9	2,900
1966	544	48,485	21,054	532	57,954	12	2,924
1967	570	40,097	14,081	566	49,027	4	938
1968	571	35,367	8,357	566	43,498	5	1,369
1969	583	34,670	7,852	574	41,513	9	1,820
1970	576	34,075	6,750	572	41,419	4	1,755
1971	581	38,514	7,278	573	45,552	8	2,699
1972	777	68,414	38,243	764	81,998	13	2,374
1973	722	59,518	39,466	722	73,903		
1974	826	62,376	23,496	823	77,722	3	611
1975	804	52,684	7,939	798	54,174	6	1,120
SMALL U.S. GOVERNMENT TRAFFIC <sup>3</sup>							
1965	110	\$ 4,379		26	733	84	7,702
1966	135	4,277		44	2,001	91	5,673
1967	101	3,370	86	40	1,844	61	3,870
1968	121	4,405	44	34	1,865	87	5,764
1969	119	3,622		40	1,318	79	5,173
1970	90	2,772		21	170	69	5,300
1971	123	3,611	8	32	816	91	5,925
1972	148	4,035		47	995	101	6,530
1973	118	4,065		28	745	90	6,848
1974	110	3,312		30	905	80	5,080
1975	110	4,729	1	27	1,023	83	6,382
SMALL FREE TRAFFIC <sup>2</sup>							
1965	28		1,704	28	3,226		
1966	24		79	20	2,848	4	213
1967	14			9	213	5	180
1968	12		48	8	374	4	144
1969	23			13	443	10	360
1970	28		71	17	1,649	11	396
1971	27		68	21	1,999	6	388
1972	35			17	397	18	1,856
1973	31			21	1,320	10	1,048
1974	29			18	663	11	917
1975	35		31	30	1,518	5	185
TOTAL PANAMA CANAL TRAFFIC							
1965	12,918	\$ 67,148,451	78,922,931	12,697	76,987,407	221	559,664
1966	13,304	72,594,110	85,323,463	13,007	83,063,183	297	752,431
1967	14,070	82,296,638	92,997,958	13,851	95,065,742	219	617,691
1968	15,511	93,153,649	105,538,318	15,212	107,465,942	299	969,451
1969	15,327	95,880,143	108,794,729	15,062	110,479,600	265	691,207
1970	15,523	100,909,856	118,909,221	15,271	115,567,581	252	694,709
1971	15,348	100,566,537	121,010,654	15,129	114,699,332	219	515,975
1972	15,198	101,488,689	111,076,803	14,956	116,044,505	242	498,919
1973	15,109	113,381,398	127,561,733	14,892	128,800,796	217	483,594
1974	15,269	121,319,791	149,679,373	15,084	137,873,248	185	377,043
1975	14,735	143,332,428	140,635,927	14,570	136,398,866	165	312,046

<sup>1</sup>Ocean traffic includes ships of 300 net tons and over, Panama Canal measurement, or of 500 displacement tons and over on vessels paying tolls on displacement basis (dredges, warships, etc.).

<sup>2</sup>Free traffic includes ships of the Colombian and Panamanian Governments and ships transiting for repairs at the Company operated yards.

<sup>3</sup>Includes vessels under 300 net tons, Panama Canal measurement (or under 500 displacement tons for vessels assessed on displacement tonnage).

TABLE 3  
Comparative Distances to Selected Ports Via  
Panama Canal and Alternate Routes<sup>1</sup>

From	Via*	To											Well- ington	Mel- bourne	Bombay	Singapore	Shanghai	Yokohama	Valparaiso	Guyaquil	Callao	Seattle (Vanc.)	San Francisco	Los Angeles	Distances to Pacific Ports Relative to Distances from New York to Those Ports	
		San Francisco	Los Angeles	Seattle (Vanc.)	Guyaquil	Callao	Valparaiso	Yokohama	Shanghai	Singapore	Bombay	Mel- bourne														Well- ington
New York (N.Y.)	PC	5,263	4,931	6,038	2,842	3,368	4,634	9,700	10,584	12,523	NA	9,942	8,523													
	M	13,122	12,805	13,898	10,241	9,605	8,366	16,209	16,761	16,619	NA	12,393	11,568													
	S	17,490	18,004	17,205	19,934	19,927	19,019	13,026	12,344	10,137	8,168	12,961	14,326													
	GH	19,733	20,247	19,442	19,740	19,733	18,825	15,269	14,587	12,380	11,382	12,641	14,132													
Halifax (N.S.)	PC	5,583	5,251	6,358	3,162	3,688	4,954	10,020	10,904	12,843	NA	10,262	8,843													
	M	12,987	12,670	13,763	10,106	9,470	8,231	16,074	16,626	NA	NA	12,258	11,433													
	S	16,964	NA**	NA	NA	NA	NA	12,500	11,818	9,611	7,642	12,435	13,800													
	GH	NA	NA	NA	NA	NA	NA	14,970	14,288	12,081	11,083	12,342	13,833													
Norfolk (Newport News, Va.)	PC	5,067	4,735	5,842	2,646	3,172	4,438	9,604	10,388	12,327	NA	9,746	8,327													
	M	13,068	12,751	13,844	10,187	9,551	8,312	16,155	16,707	NA	NA	12,339	11,514													
	S	NA	NA	NA	NA	NA	NA	13,185	12,503	10,296	8,327	13,120	14,485													
	GH	NA	NA	NA	NA	NA	NA	15,270	14,588	12,381	11,383	12,642	14,133													
New Orleans (La.)	PC	4,689	4,357	5,464	2,268	2,794	4,060	9,126	10,010	11,949	NA	9,368	7,949													
	M	13,495	13,178	14,271	10,614	9,978	8,739	16,582	17,134	NA	NA	12,766	11,941													
	S	NA	NA	NA	NA	NA	NA	14,383	13,701	11,494	9,525	NA	NA													
	GH	NA	NA	NA	NA	NA	NA	15,762	15,080	12,873	11,875	13,131	14,625													
Aruba (Neth. Ind.)	PC	3,922	3,590	4,697	1,501	2,027	3,293	8,359	9,243	11,182	NA	8,601	7,182													
	M	12,006	11,689	12,782	9,125	8,489	7,250	15,093	15,645	NA	NA	11,277	10,452													
	S	NA	NA	NA	NA	NA	NA	13,618	12,936	10,729	8,760	NA	NA													
	GH	NA	NA	NA	NA	NA	NA	14,279	13,597	11,390	10,392	11,651	13,142													
Rio de Janeiro (Brazil)	PC	7,656	7,324	8,431	5,235	5,761	7,027	12,093	12,977	NA	NA	NA	10,916													
	M	8,426	8,109	9,202	5,545	4,909	3,670	11,513	12,065	11,923	NA	7,697	6,872													
	S	NA	NA	NA	NA	NA	NA	NA	13,348	11,141	NA	NA	15,330													
	GH	NA	NA	NA	NA	NA	NA	11,791	11,109	8,902	7,904	9,163	10,654													
Buenos Aires (Argentina)	PC	8,674	8,342	9,449	6,253	6,779	NA	NA	NA	NA	NA	NA	NA													
	M	7,582	7,265	8,358	4,701	4,065	2,826	10,669	11,221	11,079	NA	6,853	6,028													
	S	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,272	NA	NA													
	GH	NA	NA	NA	NA	NA	NA	12,172	11,490	9,283	8,285	9,544	NA													

TABLE 3  
Comparative Distances to Selected Ports Via  
Panama Canal and Alternate Routes<sup>1</sup>

From	Via*	To										Distances to Pacific Ports Relative to New York to Those Ports		
		Los Angeles	San Francisco	Seattle (Vanc.)	Guyaquil	Callao	Valparaiso	Yokohama	Shanghai	Singapore	Bombay		Melbourne	Wellington
Bishops Rock (for European ports) <sup>2</sup>	PC	7,301	7,633	8,408	5,212	5,738	7,004	12,070	12,954	NA	NA	12,312	10,893	NY + 2,370
	M	12,890	13,207	13,983	10,326	9,690	8,451	16,294	16,846	NA	NA	12,478	11,653	NY + 85
	S	NA	15,283	14,998	NA	NA	NA	10,819	10,137	7,930	5,961	10,754	12,119	NY - 2,207
	GH	NA	18,722	NA	NA	NA	NA	14,258	13,576	11,369	10,371	11,630	13,121	NY - 1,011
Gibraltar (for Medit. ports)	PC	7,264	7,596	8,371	5,175	5,701	6,967	12,033	12,917	NA	NA	12,275	10,856	NY + 2,333
	M	12,223	12,540	13,316	9,659	9,023	7,784	15,627	16,179	NA	NA	11,811	10,986	NY - 582
	S	12,885	12,371	12,086	14,815	NA	NA	7,907	7,225	5,018	3,049	7,842	9,207	NY - 5,119
	GH	NA	NA	NA	NA	NA	NA	13,550	12,868	10,661	9,663	10,922	12,413	NY - 1,719
Freetown (Sierra Leone)	PC	6,933	7,265	8,040	4,844	5,370	6,636	11,702	12,586	14,525	NA	11,944	10,525	NY + 2,002
	M	10,602	10,919	11,695	8,038	7,402	6,163	14,006	14,558	14,416	NA	10,190	9,365	NY - 2,203
	S	16,794	16,280	15,995	18,724	18,717	17,809	11,816	11,134	8,927	6,958	11,751	13,116	NY - 1,210
	GH	16,636	16,122	15,831	16,129	16,122	15,214	11,658	10,976	8,769	7,771	9,030	10,521	NY - 3,611
Lagos (Nigeria)	PC	8,006	8,338	9,113	5,917	6,443	7,709	NA	NA	NA	NA	NA	11,598	NY + 3,075
	M	11,205	11,522	12,298	8,641	8,005	6,766	NA	NA	NA	NA	10,793	9,908	NY - 1,600
	S	NA	NA	NA	NA	NA	NA	NA	NA	NA	8,092	NA	NA	NY - 76
	GH	NA	NA	NA	NA	NA	NA	11,220	10,538	8,331	7,333	8,592	10,081	NY - 4,049

\* Letter abbreviations refer to Panama Canal; Straits of Magellan; Suez Canal; Cape of Good Hope.

\*\* NA = Not applicable.

— Underscored figures indicate that shortest route is via the Panama Canal.

<sup>1</sup> Compiled from U.S. Hydrographic Office, *Table of Distances*. H.O. Publication 141. Washington: Government Printing Office, 1965.

<sup>2</sup> Distances from Bishops Rock to sample Western European ports are: London, 413 nautical miles; Liverpool, 297 n.m.; Rotterdam 454 n.m.; Bergen 911 n.m.; Oslo 947 n.m.

ESTIMATED AVERAGE GENERAL INCREASES IN RAILROAD INTERSTATE FREIGHT RATES AUTHORIZED BY THE INTERSTATE COMMERCE COMMISSION SINCE 1961

I.C.C. Docket No.	Date of Original Petition	Date of Report and Citation	Effective Date of Increase	Percent of Authorized Increase											
				Over Rates in Effect Immediately Prior to Increase				Over Rates in Effect in 1961—Cumulative							
				United States	East. Dist.	Sou. Dist.	West. Dist.	United States	East. Dist.	Sou. Dist.	West. Dist.				
	2	3	4	5	6	7	8	9	10	11	12				
1. Ex Parte 256	5-18-67 (E&W) 5-19-67 (Sou.)	(7-31-67 ICC 854) (2-6-68 ICC 280)	8-19-67	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%		
2. Ex Parte 259	3-7-68	6-19-68	6-24-68	2.7	2.9	2.6	2.5	5.8	6.0	5.7	5.6				
3. Ex Parte 259		11-25-68)	11-28-68)	1.9	1.9	2.2	1.7	7.7	8.0	8.0	7.3				
4. Ex Parte 259		1-9-69)	2-15-69)	4.6	4.9	4.9	4.2	7.7	8.0	8.0	7.3				
5. Cumulative Ex Parte 259				6.0	6.0	6.0	6.0	14.2	14.5	14.5	13.7				
6. Ex Parte 262	10-10-69		11-18-69	6.0	6.0	6.0	6.0	19.7	20.0	19.4	19.3				
7. Ex Parte 265	3-3-70 (E&W) 3-12-70 (Sou.)	5-27-70	6-9-70	4.8	4.8	4.3	4.9	20.9	21.4	20.5	20.5				
8. Ex Parte 265		11-4-70	11-20-70	1.0	1.1	.9	1.0	20.9	21.4	20.5	20.5				
9. Cumulative Ex Parte 265		3-4-71	3-39 ICC 125	5.9	6.0	5.2	6.0	29.8	30.9	27.7	29.8				
10. Ex Parte 267	9-1-70 (E&W) 9-11-70 (Sou.)	11-4-70	11-20-70	7.4	7.8	6.0	7.7	35.0	37.2	31.7	34.4				
11. Ex Parte 267		3-4-71	4-12-71	4.0	4.8	3.1	3.5	35.0	37.2	31.7	34.4				
12. Cumulative Ex Parte 267				11.7	13.0	9.3	11.5	38.2	40.6	34.3	37.6				
13. Ex Parte 281	12-13-71	12-21-71	2-5-72	2.4	2.5	2.0	2.4	39.6	42.1	35.8	39.0				
14. Ex Parte 281		10-4-72	10-23-72	1.0	1.1	1.1	1.0	39.6	42.1	35.8	39.0				
15. Cumulative Ex Parte 281a				3.4	3.6	3.1	3.4	43.5	46.1	39.7	43.0				
16. Ex Parte 295	4-20-73	11-16-73	8-19-73	2.8	2.8	2.9	2.9	46.2	48.9	42.4	45.7				
17. Ex Parte 299b	8-15-73	9-13-73	10-1-73	1.9	1.9	1.9	1.9	47.2	49.9	43.3	46.7				
			1-1-74	0.7	0.7	0.7	0.7								
			Cumulative E P 299	2.6	2.6	2.6	2.6								
18. Ex Parte 301c	1-19-74	Special Permission 74-1825	1-31-74	2.1	2.1	2.1	2.1	50.3	53.0	46.3	49.8				
19. Ex Parte 303	12-5-73 (W) 1-2-74 (E&S)	2-21-74	3-9-74	4.0	4.0	4.0	4.0	56.3	59.2	52.1	55.8				
20. Ex Parte 301c	2-25-74 (Amended)	Special Permission 74-1825	3-9-74	0.4	0.4	0.4	0.4	56.9	59.8	52.7	56.4				
			Cumulative E P 301	2.5	2.5	2.5	2.5								

**ESTIMATED AVERAGE GENERAL INCREASES IN RAILROAD  
INTERSTATE FREIGHT RATES AUTHORIZED BY THE  
INTERSTATE COMMERCE COMMISSION SINCE 1961—(Continued)**

I.C.C. Docket No.	Percent of Authorized Increase										
	Date of Original Petition	Date of Report and Citation	Effective Date of Increase	Effect Immediately Over Rates in Prior to Increase			Over Rates in Effect in 1961—Cumulative				
				United States	East. Dist.	Sou. Dist.	West. Dist.	United States	East. Dist.	Sou. Dist.	West. Dist.
1	2	3	4	5	6	7	8	9	10	11	12
21. Ex Parte 299 <sup>b</sup>	1-31-74	3- 1-74	3-16-74 Cumulative E P 299	0.2% 2.8	0.2% 2.8	0.2% 2.8	0.2% 2.8	57.2%	60.1%	53.0%	56.7%
22. Ex Parte 301 <sup>c</sup>	3-18-74 (Amended)	Special Permission 74-1825	4- 1-74 Cumulative E P 301	0.3 2.8	0.3 2.8	0.3 2.8	0.3 2.8	57.7	60.6	53.5	57.2
23. Ex Parte 301 <sup>c</sup>	4-17-74 (Amended)	Special Permission 74-1825	5- 1-74 Cumulative E P 301	0.2 3.0	0.2 3.0	0.2 3.0	0.2 3.0	58.0	60.9	53.8	57.5
24. Ex Parte 301 <sup>c</sup>	5-17-74 (Amended)	Special Permission 74-1825	6- 1-74 Cumulative E P 301	0.3 3.3	0.3 3.3	0.3 3.3	0.3 3.3	58.5	61.4	54.2	57.9
25. Ex Parte 305	4-22-74	6- 3-73	6-20-74	9.0	9.4	8.1	9.0	72.8	76.6	66.7	72.1
26. Ex Parte 310	11-15-74	3-21-75	4-27-75	6.3	6.6	5.3	6.4	83.7	88.3	75.5	83.1
27. Ex Parte 313 (1st Step)	4-28-75	6- 5-75	6-20-75	4.0	4.5	2.4	4.3	91.0	96.8	79.7	91.0
28. Ex Parte 313 (2nd Step)	4-28-75	9-26-75	10-11-75	2.2	2.3	2.1	2.2	95.2	101.3	83.5	95.2

<sup>a</sup> Increases shown for Ex Parte 281 include deferred increases authorized on goods transported for recycling.

<sup>b</sup> Authorized under expedited procedure pursuant to PL 93-69 to cover increased Railroad Retirement taxes.

<sup>c</sup> Published under authority of ICC Special Permission No. 74-1825 to cover increased fuel costs. Supplanted by increase of 3.3 percent in Ex Parte 305.

<sup>d</sup> Estimated increases initially effective 4-27-75 were 4.3 percent, 4.1 percent, 5.2 percent and 4.2 percent in the U.S., East, South and West, respectively. Authorized increases shown include those subsequently authorized and effective by 7-9-75.

Note: Percentages shown are rough approximations of general increases authorized on interstate traffic, after allowing for specified exceptions and hold-downs but without allowance for subsequent voluntary "flagouts" or downward adjustments made by the railroads.

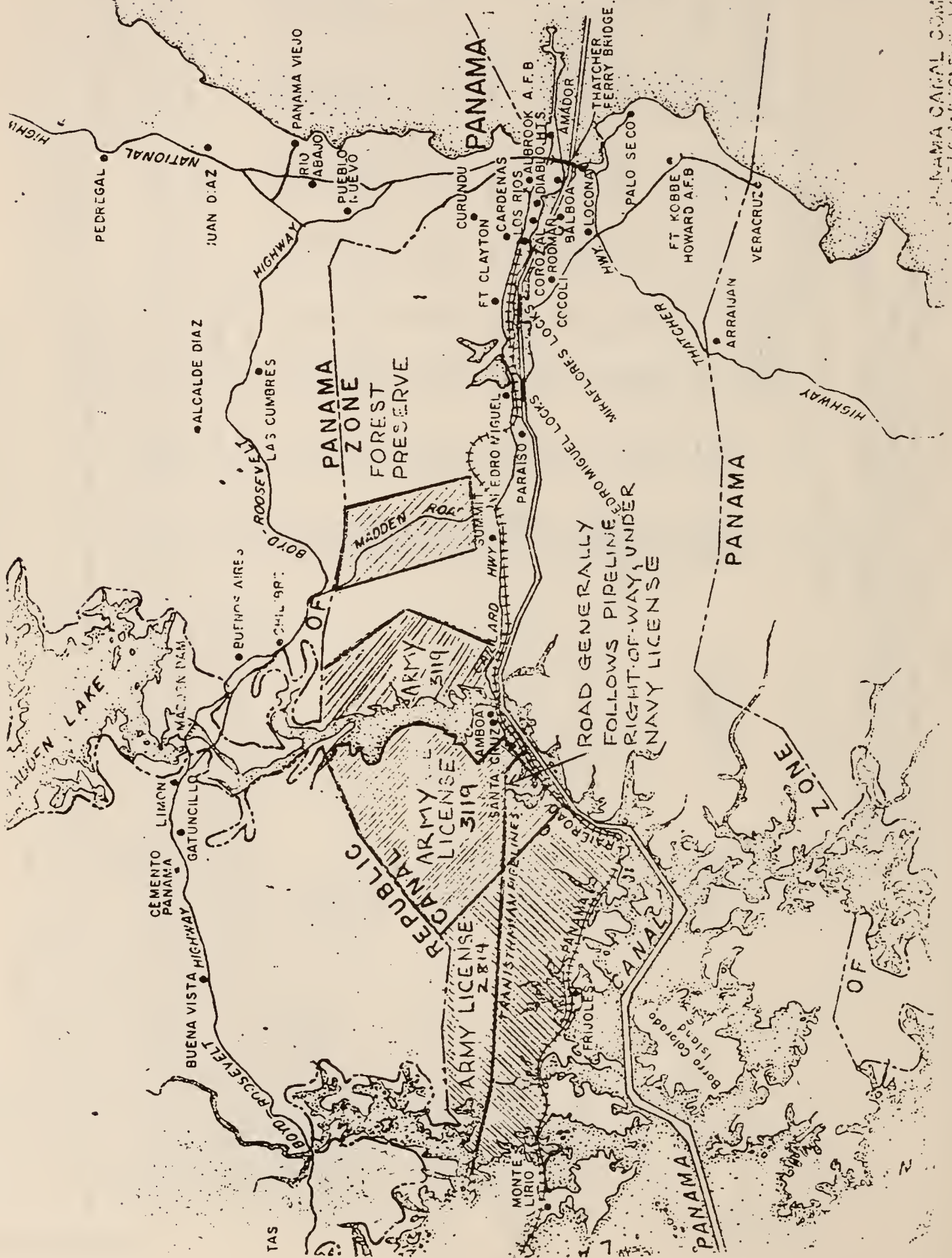
Source: Economics & Finance Dept., AAR

March 18, 1976

Map of Pipeline and Road Area

TABOC

OF PANAMA BAY



ROAD GENERALLY FOLLOWS PIPELINE RIGHT-OF-WAY, UNDER NAVY LICENSE

PANAMA CANAL COMPANY

PROJECT IDENTIFICATION DOCUMENT  
PANAMA FY 79 - LOAN PROJECT  
REFORESTATION AND RESOURCE PROTECTION

1. Summary of the Problem to be Addressed and the Proposed Response to the Problem

a. The Problem

As explained in greater detail in the Agricultural Sector Assessment submitted March 1, 1976, the entire Pacific watershed of central and western Panama has a history of slash-and-burn agriculture going back to the 19th century but which became particularly acute during the present century as population pressure increased. Virtually all forest and scrub vegetation cover has been removed from this part of the country, thus exposing a wide band of land, approximately 12,000 square kilometers or 16% of the total land area, to serious soil degradation. In some parts erosion has become irreversible, while in others it is threatening to become so. Approximately one half million hectares of land officially classified as farm land - equivalent to 23% of the land in farms - are affected. 1/

Poor watershed management practices including the removal of the forest cover from these vast areas of the Pacific watershed are even seriously endangering the water resources of the most densely populated area of Panama, i.e., the Pacific coast from Chiriquí to Panama City. The courses of the rivers and streams are extremely short and their initial gradients are quite steep. The lack of vegetation seriously reduces the water retention capability of the soil in the upper watersheds accentuating flooding and drought and leads to silting of the streambeds lower down. This situation threatens future urban water supplies as well as the country's potential for the generation of hydroelectric power and for irrigation and even threatens the watershed area which feeds the canal.

The drought of 1976 which appears to be continuing into this year has increased interest at all levels in water resource protection. The health sector assessment has stressed the connection between adequate water supplies and good health: insufficient water supplies are a basic reason for illness. Both the health and agriculture sector assessments identify one of the constraints inherent in furnishing services to the rural population of Panama, i.e., that many live in very small isolated communities.

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1/ Forest destruction is still going on in other areas at an estimated annual rate of 15,000 hectares.

As in other tropical countries, the existing natural forests are extremely heterogeneous. Moreover, most of the commercially valuable species in the more accessible areas of standing natural forests on the Atlantic coast and in the Darien have already been exploited. Thus, while 50% of the country's total land area is covered by forest and 28% is considered of some commercial value, forestry contributes only one percent to the Panamanian gross domestic product. Exports of forest products in 1973 amounted to only \$300,000, while imports of wood, wood products, and pulp were valued at \$4 million. <sup>1/</sup>

Probably because, until recently, the frontier seemed virtually inexhaustible, and also because previous governments had shown little concern for the development of the rural areas, not to speak of resource conservation, there had been scant public awareness of the increasing problem represented by the lack of watershed management and soil degradation on the Pacific watershed and the economic potential of these lands in terms of rational forest utilization. There is little or no legislation designed to avoid indiscriminate resource destruction or to promote their rehabilitation. What laws there are cannot be expected to be applied for lack of enforcement mechanisms. There are only six graduate foresters in the entire country of whom only two work in the public sector <sup>2/</sup> and there are only seven formally trained middle-level forest technicians. The Faculty of Agronomy of the University of Panama does not have a Department of Forestry.

The lands involved affect most of the target rural population for whose benefit the USAID/Panama program is directed. The poor farmers in the Azuero Peninsula and the Central Provinces -- especially the thousands of Guaymi Indians in the Western part of the Central Cordillera -- are trying to subsist on these degraded lands. Many of GOP's experiments in settling marginal farmers and migrant farm laborers in cooperatives and asentamientos are also endangered by continuing erosion of watersheds. Alternately torrential rains wash down barren slopes carrying away top soil and tropical heat during the five-month dry-season bake out productive value. As the land becomes depleted, it is abandoned; and, the cycle of subsistence and frustration -- individually or in groups -- is repeated. The abandoned areas are increasingly turning into wastelands where recovery of vegetation cannot be expected for generations.

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<sup>1/</sup> This does not include approximately \$20 million of paper imports annually.

<sup>2/</sup> One of them is the Director General of the Ministry of Agriculture's Department of Natural Resources (RENARE - see below); the other is Director of Regional Planning in the Ministry of Planning and Economic Policy.



The impact of continuing degradation on programs aimed at the small farmer is obvious: without sound watershed management, there is little long-term likelihood of a sustained increase in his real income and living standards. Unless his land base is effectively protected; he will join the growing numbers of unemployed poor farmers in the cities. And, finding long-term opportunities for the rural poor in rural areas depends on reversing the pattern of land degradation now so widespread in Panama. Settlement in cooperative or other group organizations in more productive lowlands or opening up new lands in Darien or Bocas del Toro is at best a stop-gap unless watersheds are restored and rationally managed in the years ahead.

Moreover, for socio-cultural reasons and since Panama is not run on totalitarian terms under which people can be forcibly uprooted and moved, opportunities for the target man -- now being most adversely affected by the lack of sound watershed management -- must be found for him where he chooses to live -- in the same land areas most affected by land degradation.

#### b. The Project

The Project will conserve natural resources by sound watershed management while making renewable natural resources available to improve the levels of living of the rural poor.

Project Outputs will consist of: (a) 75,000 hectares of protected forested or reforested areas, most of which will yield commercially useful tree species, while protecting soils from excessive runoff and erosion, (b) small dams and mini aqueducts which will also help control erosion and provide small supplies of power and adequate water for farm and domestic use in the lower areas of the watersheds. The feasibility of using windmills to move water in the project will be examined.

By the End of the Project there will exist a government policy on watershed management and an institution adequately staffed with trained personnel to enforce the policy.

The proper conservation of soil and water resources over a large portion of the central cordillera, combined with reforestation of suitable areas with economically useful tree species for lumber and pulp production will make a major contribution to the long run strategy as outlined in the ten-year Perspective Agricultural Plan (see Sector Assessment). This program will take marginal land out of farming and ranching and rehabilitate these lands for resource protection and will provide a base for the production of a new, environmentally sound, income stream for the currently marginal population that will remain in the areas concerned. Their levels of living will be raised, in the short run, as jobs in project related activities are created, in the medium run through introduction of improved

technology in subsistence, and subsequently market oriented, farming on existing pockets of arable land, and in the longer run through their participation in the income stream from the production of the new forests. The long-term objectives to which the project will also contribute include protection of water and down-stream land resources, lessening the nation's dependence on imports of lumber, and wood products and perhaps moving into an export position and promoting industrialization, with an eye to the growing world shortage of timber.

The project is expected to create a solid and capable forest and soil conservation service staffed by adequately trained technicians and which will have, by the end of the project, designed and initiated the implementation of ecologically, technically, and economically sound watershed management and reforestation sub-projects in approximately 15 watersheds of the central cordillera. The project will be designed to provide both the infra-structure and impetus for a continuation of the effort, including the capability for protecting and managing other degradation-prone areas, especially the remaining virgin forests.

There will be a national educational and enforcement program to stop forest destruction and teach Panamanians, especially those living in rural areas, the necessity for soil and resource conservation.

Preliminary estimates of project inputs include approximately 15 man-years of technical assistance and 50 man-years of training. They will also include earth-moving equipment, vehicles, measuring and surveying equipment and seeds, as well as such contributions to operating costs as cannot be met by the host country budget.

In view of the grossly inadequate institutional framework and lack of trained manpower, it is estimated that the disbursement period of the project will be five years. This will provide an opportunity for devoting the first year of implementation of the project largely to training of host country personnel and to technical assistance for in-country training and for surveys and planning of sub-project areas.

Estimated annual labor requirements are for approximately 180,000 man/days during the five-month dry season, equivalent to about 1,500 workers. As regards ultimate beneficiaries, it is expected that 15 hectares of forest land in full production will provide a target family income of at least \$1500 per year. 75,000 hectares of forest land will provide 5000 total ultimate direct beneficiaries with a living wage. Immediate social and economic benefits to the population in the areas concerned would consist of salaries. These would substantially exceed the going wages paid in these remote and unproductive areas where paid jobs are scarce.

A positive rate of return cannot be expected during the first 5 years of the project. However, over the life of the full reforestation program, it is expected that in the case of caribbean pine plantations, some returns will accrue beginning in year 7 and full returns at year 20. A pre-feasibility study for one 12,000 hectare sub-project, which assumes full harvest beginning with year 16 and which is based on 60% plantation of coniferous species yielding income beginning with years 10 to 15, and 40% broad-leaf woods with slower maturity, is projected to yield a positive rate of return of 14%, with cash flow discounted at 10% and where cost included an assumed 10% interest rate on borrowing. These projections do not include technical assistance and training costs, nor do they include estimates of economic and social benefits derived from watershed management and protection of agricultural land downstream.

c. Major Assumptions

Major assumptions for project success are of course in the first place a continuing growing top-level government commitment to the watershed management resource protection-reforestation program as an integral component of its long-term development strategy. Moreover, the project may require the enactment and implementation of new legislation.

The assumption is based upon the fact that a new awareness of the growing need for watershed management, resource, conservation, protection and rehabilitation is becoming evident in Panama. For example, the entire watershed of the recently completed Bayano hydroelectric reservoir has been declared a protected area. All private farm land was obtained by right of eminent domain and no private farming or ranching activity will be allowed in the watershed. A master plan already exists for regional development, including conservation measures, for the Panama Canal and Lake Madden watersheds (the latter, partially comprised within the Canal Zone, is the source for the water supply for the city of Panama). A forest reserve is being gradually created in a partially degraded area around the small lake of La Yeguada in the central cordillera, and a number of small scale reforestation projects are under way, some of them combined with improvements in subsistence farming on pockets of level land. All these activities (in addition to a number of others such as irrigation, inland fisheries and soil conservation) are the responsibility of RENARE, the Department of Renewable Natural Resources of the Ministry of Agricultural Development. With its small technical staff and very limited resources <sup>1/</sup> it had reforested over 3,810 hectares in five different locations by the end of 1976 and had produced nearly 950,000 tree seedlings from four nurseries in 1976.

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<sup>1/</sup> 1976 budget: \$405,000 for investments and \$450,000 for operating expenses.

#### d. Other Donor Activity

The most important donor activity in this field is represented by the comprehensive forest inventory completed by FAO in 1973 (FO:SF/PAN 6) which, together with the rural cadaster completed in 1970 with AID financing, provides a sound information base for both forest utilization and reforestation activities. In addition to technical matters, the FAO report includes a volume on policy, legislation and forest administration.

FAO, partly in conjunction with SIDA and the Government of Finland, has also provided 14 weeks of external training in forest development planning and forest inventory, and sponsored the participation of two technicians in a four-week workshop in Guatemala on management of wilderness areas. Three months of training in Canada, US and Mexico in administration of national forests was provided jointly by AID and the Rockefeller Brothers Fund. The Inter-American Institute of Agricultural Sciences (IICA) sponsored a one-week course on management of watersheds in Panama. The FAO is sponsoring the training of 12 Panamanians in Colombia for 3 years. They are being trained as middle level forestry technicians of the ranger-type specializing in forest protection and forest management.

A specialist in watershed management has been assigned permanently to the IICA Mission in Panama since September, 1976.

The UNDP's new five-year program proposal includes a possible \$460,000 project beginning in 1979 in wood industry development, which will probably concentrate mostly on selection of products, pre-feasibility studies and elaboration of specific industrial projects.

A watershed renewal project to be supported by the World Food Program with 8 million dollars of food products is expected to be authorized in CY 1977. Under this project 1,000 families presently located in the central cordillera on severely denuded and eroded soils will plant from 3 to 4 thousand hectares of trees each year for a three year period. The Panamanian Government is to provide \$1.5 million to cover material expenses as well as partial salary payments to the participants, while the WFP food products will be provided the workers on a regular basis. The project should be approved by October 1977 and operations start by May of 1978.

It is anticipated that upon completion of the project the GOP will be able to continue the project using locally produced food products. In the second phase, in addition to forest trees other species such as fruit, coffee and cacao trees will be planted in suitable areas. Attention will be paid to the concentrating of the scattered families into towns of 500 families each where it will be easier to supervise the watershed practices as well as the providing of better education; health and other social facilities.

The Food for Forests project of the FAO is designed specifically for the sedentary Guaymi indian areas. It will probably not be suitable for areas of ladino population, which typically engages in migratory slash-and-burn subsistence farming. The AID project will be designed to complement the activities under the FAO project.

e. Financial Requirements

The project will comprise the reforestation of approximately 75,000 hectares in the 15 different sub-project areas, as the first installment in a massive reforestation effort. At an average projected cost of investments and operating expenditures of approximately \$250 per hectare, total direct project cost is estimated to amount to \$20 million, of which \$10 million would be provided by the Government of Panama and \$10 million in the form of an AID loan. The project will include approximately 15 man-years of technical assistance for a total estimated cost of \$900,000 and approximately 50 man-years of medium and short-term external training for a total estimated cost of approximately \$400,000.

Approximately 36% of the above estimated cost of each sub-project is represented by personal services, buildings and land acquisition, all of which would be funded from GOP counterpart.

f. Resources Required for PRP and PP Preparation

For PRP (Due 3rd Quarter FY 78)

<u>Specialty</u>	<u>Timing</u>	<u>Weeks</u>	<u>Estimated Cost</u>
Tropical Forester and Watershed Management	8/1 - 9/30	4	\$ 5,000
Forest Economist	8/1 - 9/30	4	5,000
TDY Loan Officer	9/21 - 10/15	<u>3</u>	<u>-</u>
Total:		11	\$ 10,000

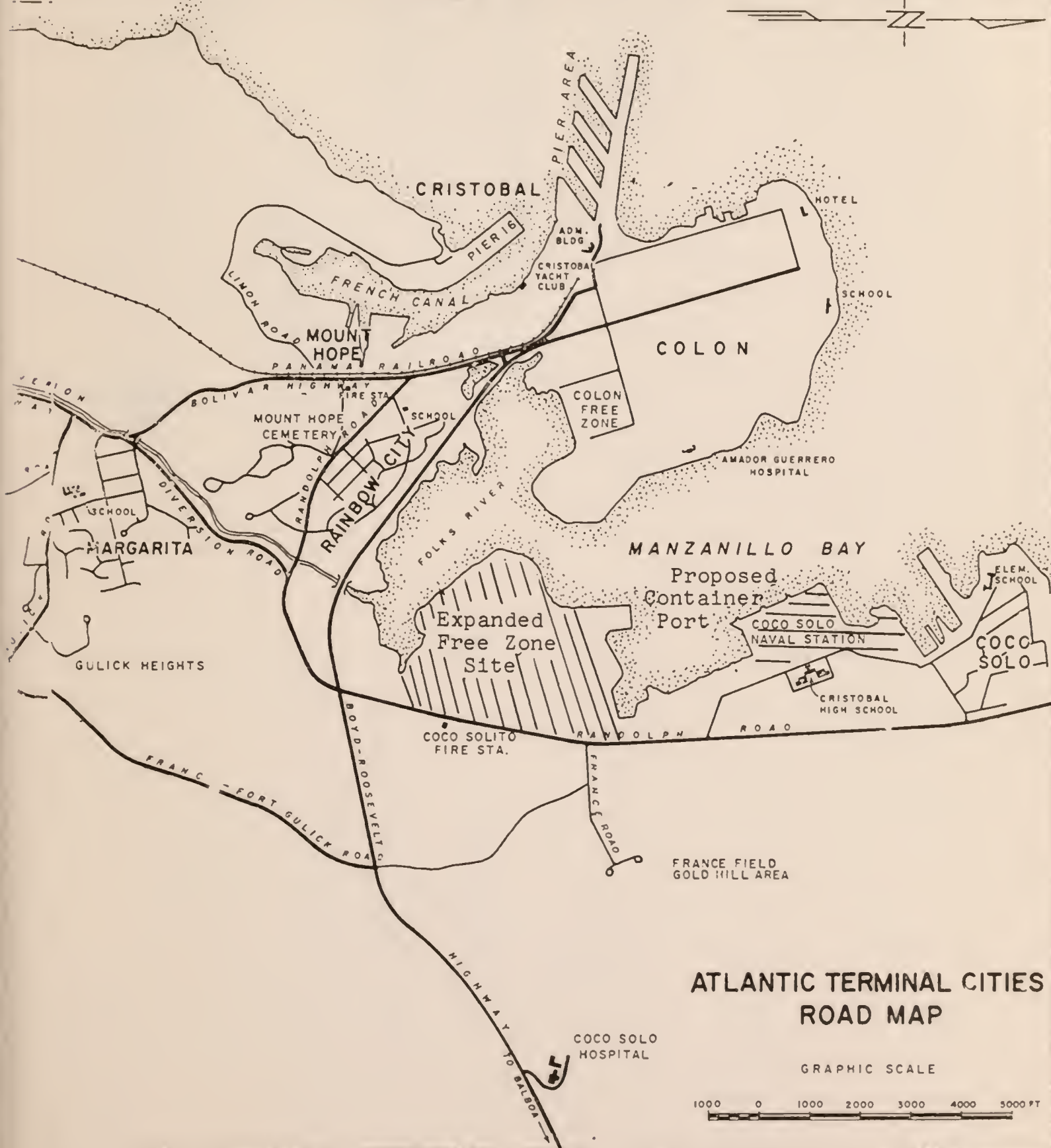
For PP (Due FY 79):

Various specialists such as Tropical Forester, Watershed and Multiple Land Use Specialist, Soil Conservationist, Forest Economist, for a total of 20 man/months and \$100,000.



# LIMON BAY

A N A M A C A N A L



## ATLANTIC TERMINAL CITIES ROAD MAP

GRAPHIC SCALE









UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY  
WASHINGTON, DC 20451

September 1, 1977

Mr. William H. Mansfield III  
Office of Environmental Affairs  
Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

DRAFT ENVIRONMENTAL IMPACT STATEMENT

BY

FEDERAL AGENCIES

The U.S. Arms Control and Disarmament Agency has reviewed the draft Environmental Impact Statement for the new Panama Canal Treaty which was received as an enclosure to Mr. Grant's letter dated August 29, 1977, and wishes to advise you that it has no comments concerning the draft statement.

Sincerely,

Thomas Graham, Jr.  
General Counsel



AGRICULTURAL RESEARCH SERVICE  
PROGRAM ANALYSIS AND COORDINATION  
STAFF

OF UNITED STATES  
DEPARTMENT OF  
AGRICULTURE

WASHINGTON, D.C. 20250



CANAL ZONE GOVERNMENT  
BALBOA HEIGHTS, CANAL ZONE  
OFFICE OF THE GOVERNOR

IN REPLY REFER TO:

September 22, 1977

SEP 28 1977

Mr. William H. Mansfield III  
Office of Environmental Affairs  
Department of State  
Washington, D.C. 20520

Mr. William H. Mansfield III  
Office of Environmental Affairs  
U. S. Department of State  
Washington, D. C. 20520

Dear Mr. Mansfield:

We have reviewed the "Draft Environmental Impact Statement for the New Panama Canal Treaty" report and offer the following comments.

Dear Mr. Mansfield:

The Panama Canal Company Environmental Quality Committee has examined the Draft Environmental Impact Statement for the New Panama Canal Treaty which was forwarded to us on August 29, 1977. Our comments on that draft are enclosed.

The primary concern from the animal disease standpoint is addressed in the Environmental Impact Statement. Vessels from all over the world with ship stores aboard to feed its crew poses a danger from the introduction of foreign animal diseases into the Canal Zone. The EIS addresses the problem at three places in the document.

We would appreciate receiving a copy of the Final Environmental Impact Statement when it is available. If we can be of further assistance please do not hesitate to let us know.

1. Tab E, Attachment b(1). The Code of Federal Regulations Title 35, provides the current authority and describes procedures to control the discharge of potentially contaminated garbage from vessels as they transit the canal.

Sincerely yours,

2. On page 36 (Tab A?), the treaty under consideration grants the U.S. the right to take measures needed to insure sanitation in areas required for the canal's operation and defense and to make and enforce rules for the vessels transitting the canal.

3. On page 31 (Tab A?), a statement is made which addresses the major concern of the environmentalists in all areas, i.e., deforestation, soil erosion, siltation, and disease control. "The main issue is one of effectiveness of the enforcement of these measures." The statement refers to authority currently provided under Panamanian and U.S. laws and regulations.

It appears the treaty has adequately dealt with these concerns.

Sincerely,

*Richard L. Hunt*

Howard A. Osborn  
Agricultural Economist

*Richard L. Hunt*

Richard L. Hunt  
Acting Governor  
Vice President, Panama Canal Company  
Chairman, Environmental Quality Committee

Enclosure

COMMENTS BY THE PANAMA CANAL COMPANY  
AND CANAL ZONE GOVERNMENT ON  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
FOR THE NEW PANAMA CANAL TREATY,  
DATED AUGUST 1977, PREPARED BY  
THE U.S. DEPARTMENT OF STATE

By letter dated August 29, 1977, Lindsey Grant, Deputy Assistant Secretary for Environmental and Population Affairs in the United States Department of State requested comments by the Panama Canal Company and Canal Zone Government on the document entitled "Draft Environmental Impact Statement for the New Panama Canal Treaty." The following comments are submitted in response to that request.

As a preliminary matter, on pages 2 and 3 of the draft, it is stated that, while there will also be a Treaty Concerning the Permanent Neutrality and Operation of the Panama Canal, the operational aspects of that agreement do not differ from current practice and that the Department of State, therefore, has concluded that the Neutrality Treaty will have no foreseeable environmental impacts. The premise upon which that conclusion is based would appear to be faulty in at least one substantive respect.

Under current practice, all vessels passing through the Canal are required to advise Canal officials what cargo they are carrying. Paragraph 1(e) of Article III of the Neutrality Treaty provides, however, that auxiliary vessels of all nations would be entitled to transit the waterway without disclosing the nature of their cargo and without being subjected to inspection or search. That provision would seriously limit the ability of the operator to schedule transits for such vessels laden with hazardous cargoes in a manner which would assure the safety of the Canal and other vessels. The situation is exacerbated by the broad definitions contained in Annex A to the Neutrality Treaty. For example, Colombian Naval tankers in dangerously deteriorated condition or vessels carrying extremely hazardous chemical products now prohibited from passing through the Canal, would be entitled to transit without disclosing their cargoes, thereby creating the potential for accidents in the waterway which could have far-reaching, adverse environmental effects. In view of those circumstances, it appears to us that the final version of the impact statement should address itself to the Neutrality Treaty as well as to the Panama Canal Treaty itself.

Turning to the draft's treatment of the Canal Treaty, the narrative description of the current physical and natural environment of the Canal Zone (set out at pages 4 through 11) appears to be essentially accurate. The map of that area (included as Tab A to the draft statement) to which the reader's attention is directed at the beginning of this narrative, however, is very misleading. The map indicates that only about 10 percent of the Zone is tropical forest, whereas, in reality such forests cover approximately 90 percent of the land areas here.

The draft statement, on page 9, describes the Pipeline Road area of the Canal Zone and, on page 29, correctly notes the ecological importance of maintaining that approximately 28,000 acre tract of semi-deciduous tropical forest in its present state.\* Substantially all of this area would be transferred to Panama under the Treaty, and as the draft again correctly notes at page 18, preservation of it and other areas "will be a real test of the international cooperation called for in Section 102(2)(F) of the National Environmental Policy Act." What appears to be lacking in the draft statement is a description of the criteria or system of priorities which were relied upon in reaching the determination that the use of areas of such high environmental importance would not be retained by the United States.

The draft refers (at page 15) to the environmental laws and regulations of the United States and Panama, and summarizes the provisions of those of the former which now apply in the Canal Zone, as well as the Panamanian laws which would apply after the Treaty enters into force. (Tab E) The statement does not discuss, however, the potential for harm to water quality here which could result from the fact that Panama has no law or regulation paralleling either Section 311 of the Federal Water Pollution Control Act, as amended, 33 USC § 1321, or the Marine Protection, Research and Sanctuaries Act of 1972, 33 USC § 1401-44. The former statute prohibits the discharge of oil or other hazardous substances into Canal Zone waters; the latter regulates the dumping of other matter into ocean waters. An analysis of the impact which the loss of the environmental protections provided by these two statutes is likely to have would appear to be warranted in the final version of the statement.

The treatment by the draft (at pages 18 through 21) of the effects which the treaty would have on employment with U.S. Government agencies in the Canal Zone contains three substantive misstatements which may well warrant a reexamination of this subject area. The first of these erroneous statements, which appears on page 19, is as follows:

"All U.S. civilians currently employed in the Zone can continue in U.S. Government jobs until retirement."

This assurance, which appears to have as its source the August 15, 1977 fact sheet of the Department of State (attached to the draft as Tab B), has no basis in the Treaty or related agreements. Rather, the Treaty provides

\* Not mentioned in the draft statement is the seemingly relevant fact that the Governor of the Canal Zone has recently posted the Pipeline Road area against hunting. (In that regard, attached hereto for your information and possible use in the final version of the impact statement is a list of the species of birds which a recent census revealed are found in this area.)

(in Article X) with regard to those persons who are displaced from employment as a result of the discontinuance of certain activities, only that they...

"...will be placed by the United States of America, to the maximum extent feasible, in other appropriate jobs with the Government of United States in accordance with United States Civil Service regulations." (Emphasis added.)

That language would seem to make it clear that there exists no treaty guarantee of continued employment with the U.S. Government as the draft impact statement assumes.

The second substantive error appears on page 20 of the draft. After noting the number of U.S. and non-U.S. citizen employees of the Company/Government eligible for immediate retirement and discontinued service retirement.\* The following conclusion is drawn:

"Thus 81% of the American and 71% of the non-American employees who will be discontinued in the first three years already qualify for retirement."

This obvious non-sequitur assumes that the persons whose jobs would be discontinued would be the same ones who are eligible to retire.

Finally, again on page 20 of the draft, the statement is made that the Panama Canal Company and Canal Zone Government are "seeking generous relocation allowances", apparently for employees who are displaced as a result of the Treaty. That statement is simply not true.

The inaccuracies listed above should be corrected in the final version of the impact statement and conclusions based thereon should be revised, as appropriate.

In its discussion (at pages 23-24) of the Treaty's provisions regarding construction of a sea-level canal or a third set of locks, the draft notes that the National Academy of Sciences was assigned the task of updating the 1970 environmental studies concerning a sea-level canal. It is our understanding that the Academy has now completed that assignment. Accordingly, it would appear appropriate to discuss the findings of that body in the final version of the impact statement.

\* Although the draft doesn't mention any date, the figures given were as of July 30, 1977. Also, there is an apparent typographical error in the number of non-U.S. citizens who were eligible to retire on that date: the correct number was 777 -- not 77 as stated in the draft.

Recognizing that the new financial demands which the Treaty will place on the Canal agency will require an increase in Canal tolls, the draft states (at page 25) that it is not possible at this point in time to estimate what the magnitude of that increase would be. Based upon the Canal Company's experience with a 19.7 percent toll increase in 1974 and a 19.5 percent increase in 1976, the draft concludes that any toll increase required by the Treaty would divert only a small amount of traffic to other trade routes and, accordingly, concludes (at page 26) that "the toll increases would not significantly affect the quality of the human environment within the meaning of Section 102(c)\* of the National Environmental Policy Act of 1969."

It is the understanding of this agency that, depending upon several variables, the most important of which is the amount of revenue which is realized from the transit of North Slope oil, the Treaty will require an initial toll increase of between 25 and 40 percent. In advance of completing a new sensitivity study of the impact which a toll increase in that range would have on the various major cargoes now passing through the Canal, we cannot comment on the validity of the aforementioned conclusion reached in the draft impact statement.

One of the most serious deficiencies in the draft, in our view, is the lack of any discussion of the effects which the Treaty can be expected to have on existing socio-economic patterns in what is now the Canal Zone. For the U.S. citizen residents of the Zone, the transfer of jurisdiction to Panama and the resulting subjection to a foreign police authority and system of justice is certain to have a profoundly unsettling effect. Far reaching changes in employment privileges, and living conditions as a result of the Treaty can also be expected to have their effect on the community here. Assumption by Panama of municipal services such as fire protection, street maintenance, street lighting, street cleaning, traffic management and garbage collection in the Canal operating areas and housing areas also may well significantly affect both the physical environment as well as population patterns here.\*\* Yet no attempt has been made in the draft to compare the manner in which such services are now performed in Panama with the way they are performed in the Canal Zone. Our reading of the Council on Environmental Quality's Guidelines for the Preparation of Environmental Impact Statements, 40 CFR Part 1500, leads us to believe that analysis of the anticipated effects on this element of the human environment is essential. Accordingly, we suggest that it be addressed in the final version of the statement.

\* The correct citation would be to Section 102(2)(C).

\*\* In that regard, we are unaware of any factual basis for the statements appearing on pages 28 and 36 indicating that the U.S. agency operating the Canal will continue to provide these services.

CENTRAL INTELLIGENCE AGENCY  
WASHINGTON, D.C. 20505

19 SEP 1977

Other changes, largely minor in nature, which you may wish to make to the draft in the interest of accuracy, clarity and completeness are as follows:

	Page	Line	Suggested Change
(a)	7	46	Change "65" to read "95".
(b)	9	13	Add after Limbo Hunt Club, the words "the Frijoles Hunt Club,".
(c)	11	1	Change "the most" to read "a".
(d)	18	40	Change "600" to read "700".
(e)	18	41	Change "2,800" to read "3,000".
(f)	19	1	Change "1,050" to read "1,200".
(g)	19	23	Change "89" to read "83".
(h)	19	36	Change "3-4,000" to read "5,000".
(i)	20	7	Add at beginning of line the words, "As of July 30, 1977,".
(j)	20	7	Change "77" to read "777".
(k)	20	7	Change "are" to read "were".
(l)	20	37	Change "1,500" to read "1,000".
(m)	21	10	Add before the period at the end of the sentence the words "after the transition period.".
(n)	29	40	Add after Center the words "and the 193d Infantry Brigade (CZ)"
10 (o)	32	-	Add paragraph on Panama/Arraijan right of way.
(p)	26	2	Change "25.6" percent to "19.7" percent.

Mr. William H. Mansfield III  
Office of Environmental Affairs  
Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

While we have reviewed the Department's draft Environmental Impact Statement for the New Panama Canal Treaty with great interest, this Agency can offer no substantive comment concerning environmental impacts and effects on the proposed Treaty.

Sincerely,

James H. McDonald  
Director of Logistics



**UNITED STATES DEPARTMENT OF COMMERCE**  
**The Assistant Secretary for Science and Technology**  
 Washington, D.C. 20230  
 (202) 377-3111

September 29, 1977

Mr. William H. Mansfield, III  
 Office of Environmental Affairs  
 Department of State  
 Washington, D. C. 20520

Dear Mr. Mansfield:

This is in reference to your draft environmental impact state-  
 ment entitled "The New Panama Canal Treaty." The enclosed  
 11 comments from the Maritime Administration (MarAd) are forwarded  
 for your consideration.

Thank you for giving us an opportunity to provide these  
 comments, which we hope will be of assistance to you. We  
 would appreciate receiving twelve (12) copies of the final  
 statement.

Sincerely,

*Sidney R. Galler*  
 Sidney R. Galler  
 Deputy Assistant Secretary  
 for Environmental Affairs

Enclosure: Memo from MarAd



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Maritime Administration**  
 Washington, D.C. 20230

September 26, 1977

MEMORANDUM FOR: Dr. Sidney R. Galler  
 Deputy Assistant Secretary for Environmental  
 Affairs  
 Department of Commerce

Subject: Maritime Administration Comments on Draft Environmental  
 Impact Statement CN 7709.05 for the New Panama Canal  
 Treaty

The Maritime Administration has reviewed the subject draft  
 environmental impact statement and submits the following  
 comments for consideration:

Deforestation Prevention for Watershed Maintenance

The treaty provisions for environmental protection are  
 commendable. We agree that the critical element for  
 successful maintenance of the forests and watershed will  
 be effective enforcement of current protective measures.  
 Panama has a strong vested interest in maintaining the  
 canal's water level to permit ship's access and assure a  
 profitable canal operation, but environmental organizations  
 in Panama may need support in their work to preserve the  
 area. In that regard, we concur with the DEIS recommendation  
 that "In developing plans for the economic assistance which  
 will accompany the treaty, the U.S. should strengthen  
 Panamanian institutions engaged in promoting conservation,  
 sanitation and the rational exploitation of that country's  
 resources. . ."

11

Increased Toll Effects and Cargo Division

It seems that the issue of cargo diversion and other  
 effects of a toll increase is less than optimally covered.  
 The article on the effect of increased canal tolls (page 25)  
 admits that it is not presently possible to estimate the  
 percentage increase over current toll levels needed to  
 cover the Treaty payments to Panama, then offers a table

showing estimated traffic levels during the years 1978-84 under four different toll levels. Unfortunately, the derivation of these estimates does not appear to be explained in either the explanatory notes or in Tab F, thereby providing no basis for either substantiating or challenging them.

Tab F, while of recent origin, does not specifically address the situation posed by the Treaty and extrapolation from its findings could be hazardous. It was developed some 18 months ago, incident to a proposal by the Panama Canal Company for a 19.5 percent toll rate increase (following closely upon previous actions which had already increased tolls by 25.6 percent over their historical level). Tab F is based largely upon a series of sensitivity analyses performed by two consulting firms and upon the environmental impact statement prepared by the Federal Maritime Commission relative to FMC Docket No. 73-38 involving "mini-bridge" service. Although the assessment comprising Tab F is now part of the public record concerning that 19.5 percent toll increase, we believe its application to the Treaty implications warrants critical comment on some of its assertions and technical contents.

The sensitivity analyses assume that cost is the sole factor determining vessel routing, so that some operators, confronted with higher tolls, will simply reroute their ships via the Suez Canal or the Cape of Good Hope. We suspect, however, that considerations of international relations would also be an influence - one running counter to the influence of costs. One long term attraction of the Panama Canal has been the assurance that, irrespective of possible political instability in Latin America, the Canal and its port services such as bunker facilities would remain operative and neutral. The provisions of the Treaty appear to provide for continuity of such assurance. However, comparable assurance is not available for Suez, given the memories of the 1967 closing due to war and the ongoing Arab-Israeli tensions, nor for the vicinity of the Cape of Good Hope, given the internal strife within the Union of South Africa, Rhodesia and other parts of southern Africa. Conceivably, the lack of such assurance could discourage recourse to these alternate routings.

The energy consumption example given for movement of bulk commodities from New Orleans to Yokohama has an arithmetic error and a typographical (?) one. At 15 knots, the 15,762 mile run around the Cape of Good Hope would require 43.7 days rather than the 42.4 days shown. The total fuel consumption for the 76,500 DWT vessel sailing via the Panama Canal would be 1,602 tons versus the 602 tons shown.

More significant than these errors is the understatement of the difference in fuel consumption between the routings caused by considering only the outbound leg of each voyage rather than the round trip. The difference in roundtrip fuel consumption will at least be twice as large as indicated by the examples.

The material based upon the environmental impact statement for Docket 73-38 also has some shortcomings. It considers the effect upon air pollution levels of diversion of Canal cargo to rail mini-bridge but makes no reference to motor carriers who, under the liberalized ICC regulatory climate, would also compete for a portion of the diverted traffic. Motor transport contributes far more heavily to air pollution per ton of cargo moved than does rail transport.

The FMC EIS argues that cargo diversion to rail land-bridge will not be substantial. It assumes that long-haul trans-continental rates have grown in the same proportion as short-haul rates, but typically rail rates are not proportional to distance travelled. Because of the high ratio of fixed to variable costs in railroad operations, short-haul rates tend to be higher per mile travelled than do long-haul rates. For this reason, any nationwide average would reflect the short-haul increases more heavily than the long-haul ones and would give an exaggerated picture of long-haul rate behavior. The FMC EIS compared rates of increase of nationwide rail rates with canal tolls to reach its conclusions. However, the more applicable long-haul rate would tend to be lower, giving a higher cargo diversion estimate than the FMC EIS indicates.

The FMC EIS also alleges that rail transportation consumes fewer BTU per ton mile than all-water transportation, except in the case of one class of vessel. While actual vessel fuel economy will vary, a randomly selected example does not support the allegation. An 18,000 DWT container ship with a sustained sea speed of 22 knots and a 24,000 shaft horsepower steam turbine propulsion plant consumes approximately 550 BTU per ton-mile; the most frequently quoted figures for rail are 670 to 750 BTU per ton-mile.

We believe that the subject of the effects of a further canal toll increase deserves more thorough examination. Such examination should consider in detail the effects of imposition of a toll increase of 25-50 percent above the nearly 50 percent already imposed since 1974 and treated in Tab F.

The likelihood that a ratification vote will not occur during 1977 offers an opportunity for the recommended additional examination. By all means, the work already accomplished should be built upon where feasible. It cannot, however, substitute for the recommended extra analysis.

*Samuel H. Steinman*  
 GEORGE C. STEINMAN  
 Chief, Environmental Activities Group  
 Office of Shipbuilding Costs

IN REPLY  
 REFER TO

DLA-W

28 SEP 1977

Department of State  
 Bureau of Oceans and International  
 Environmental and Scientific Affairs  
 Washington, D. C. 20520

Dear Sir:

This is in response to your letter to this Agency dated August 29, 1977.

The enclosed comments on the Draft Environmental Impact Statement for the New Panama Canal Treaty were provided by the Defense Fuel Supply Center, a field activity of this Agency.

Sincerely,

*J. F. Brewer, Jr.*

JOHN F. BREWER, JR.  
 Colonel, USA  
 Staff Director  
 Installations and Services

1 Encl



LOGISTICS  
 DEFENSE SUPPLY AGENCY  
 HEADQUARTERS  
 CAMERON STATION  
 ALEXANDRIA, VIRGINIA 22314







LOGISTICS  
**DEFENSE AGENCY**  
 DEFENSE FUEL SUPPLY CENTER  
 CAMERON STATION  
 ALEXANDRIA VA 22314

26 SEP 1977

DFSC-D

SUBJECT: Draft Environmental Impact Statement (EIS) for the New Panama Canal Treaty

26 SEP 1977

SUBJECT: Draft Environmental Impact Statement (EIS) for the New Panama Canal Treaty

TO: DLA-W

1. Reference DLA-W letter of 15 Sep 1977, subject as above.
2. The subject draft was circulated within DFSC and after researching the future implications of the Panama Canal Treaty to the DFSC mission, the following background (paragraph 2.a) and comments (paragraph 2.b) are offered:

a. Background

- (1) Panama has unilaterally extended territorial jurisdiction to 200 nautical miles in 1967.
- (2) Panama has ratified the "Informal Composite Negotiating Text (ICNT)" which is the latest text of the Law of the Sea, dated 1973, and it follows that Article 234 of the ICNT "Protection of the Marine Environment" is binding on the Government of Panama.
- (3) Panama was an original signatory party to the "International Convention for the Prevention of Pollution of the Sea by Oil" on 12 May 1954. The United States ratified this Convention on 8 December 1961. A subsequent amendment, April 11, 1962, was ratified by both parties.

b. Comments

- (1) Panama, as a coastal state, should cooperate in marine protection including oil pollution prevention and cleanup in accordance with (2.a.(2)).
- (2) Panama should fully cooperate with the flag state in oil spill cleanup efforts in accordance with (2.a.(3)).
- (3) According to the proposed new Panama Canal Treaty, the United States will continue to have access and rights to use all land and water areas in the Canal Zone which will be under Panamanian jurisdiction. The

IN REPLY REFER TO DFSC-D

EIS should be changed to clarify measures to protect U.S. properties, including Third Party liabilities for oil pollution damage. The impact of accidents resulting in oil spills from vessels passing through the Canal should be addressed in the EIS under Section III.D, "Impacts in Panamanian Land-Water Use Areas," pages 28 through 34.

(4) The draft EIS states in Section III.D, paragraph 1, page 28, that "If the proposed treaty goes into effect, the responsibility and authority for dealing with environmental issues will rest with the Government of Panama..." The draft EIS should also address the specific responsibilities with regard to oil pollution prevention and countermeasures to be taken by Panama in the event of a major spill in its territorial waters. In addition, the EIS should address oil spill cleanup responsibilities of persons as per comments in 2.b.(1) and 2.b.(2).

(5) Measures to effect cooperation in the areas of oil pollution should be described in the functions of the "Joint Environmental Commission" which will be charged with the environmental protection program on behalf of both parties signatory to the new Treaty.

3. Our concern is that environmental protection carries with it a desire to protect fuel tanker traffic consistent with the defense interest of the United States. Every effort should be made to jointly prevent and control oil pollution incidents and facilitate speedy movement of fuel tankers carrying U.S. cargo.

*Robert L. Ringhusen*

ROBERT L. RINGHUSEN

Captain, SC, USN  
 Chief Commentator



DEPARTMENT OF THE AIR FORCE  
WASHINGTON, D. C. 20330



OFFICE OF THE ASSISTANT SECRETARY

5 OCT 1977

Mr. William H. Mansfield III  
Office of Environmental Affairs  
Department of State  
Room 7820  
Washington, D. C. 20520

Dear Mr. Mansfield:

This is in response to your letter of August 29, 1977 requesting the Department of the Air Force review and comment on the Draft Environmental Impact Statement on the New Panama Canal Treaty. The Air Force comments are attached.

Thank you for the opportunity to comment.

Sincerely,

CARLOS STERN, Ph.D.

Deputy for  
Environment & Safety

DEPARTMENT OF THE AIR FORCE  
COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT  
STATEMENT ON THE NEW PANAMA CANAL TREATY

- 13 On pages 21 and 22 the Draft EIS indicates that the Panama Canal Company/Canal Zone Government will discontinue certain commercial activities and that some activities and facilities will be transferred to the United States Forces to enable them to support U.S. citizen employees of the Canal Commission. There is no indication of whether these actions will result in a need for increased U.S. military personnel and what the impact of such additional personnel would be. This same comment applies to page 27, section C.1 which indicates that there will be joint U.S.-Panamanian military police patrols for the sixteen areas of military coordination. Will such activities, or the intensity of effort of such activities, require increased U.S. military manning requirements?
- 14 2. The Draft EIS should identify all facilities to be transferred to the Panamanian Government which will require relocation or replacement by U.S. forces and discuss the resulting environmental impact of these actions, for example:
- a. The Curundu Antenna site will have to be relocated entailing possibly \$6-11 million for a new site and the possible clearance of some 350 acres of forest area. High frequency radio coverage will have to be ensured during site relocation.
  - b. The 210th Army Aviation Battalion at Albrook will have to be relocated possibly onto Air Force property and ramp space may have to be constructed.
- 15 3. The Draft EIS should indicate whether construction will have to be expedited to insure availability of needed facilities by the time existing facilities are transferred to the Panamanian Government.
4. Section IV. Alternatives to Proposed Actions. It might be misleading to label Alternative D as 'A New Treaty' when, in effect, its difference from the preferred alternative appears to be only a matter of degree in the range and strength of environmental protection provisions. This section does not identify and discuss stronger environmental protection provisions, if any, which might possibly also be acceptable to the Panamanians. Also, the fact that Alternative D 'A New Treaty', might also obligate the United States to provide assistance to Panama for promotion of environmental protection, should not preclude a fuller treatment of environmental protection alternatives.

1 Attachment  
Comments on the Draft  
Environmental Impact  
Statement



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D C 20460

6 OCT 1977

OFFICE OF THE  
ADMINISTRATOR

Mr. William H. Mansfield, III  
Office of Environmental Affairs  
Department of State  
Washington, D. C. 20520

Dear Mr. Mansfield:

The Environmental Protection Agency has completed its review of the draft environmental impact statement on the Panama Canal Treaty, dated August 29, 1977. We have rated the draft EIS LO-1. EPA has no objections to the proposed action as described in the draft and finds that the draft adequately sets forth the proposed action as well as alternatives reasonably available. The classification and date of EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act.

If you have any questions concerning our categorization procedure, please let us know.

Sincerely yours,

Rebecca W. Hanmer  
Director  
Office of Federal Activities (A-104)

FEDERAL POWER COMMISSION  
WASHINGTON, O.C. 20426

September 20, 1977

Mr. William H. Mansfield, III  
Office of Environmental Affairs  
Department of State  
Washington, D. C. 20520

Dear Mr. Mansfield:

We are replying to your request of August 29, 1977 to the Federal Power Commission for comments on the Draft Environmental Impact Statement for the New Panama Canal Treaty. This Draft EIS has been reviewed by appropriate FPC staff components upon whose evaluation this response is based.

At present, most aspects and potential impacts of the new treaty do not infringe upon the jurisdiction of the Federal Power Commission. One item of major concern to the Commission, however, is the impact on the cost of oil delivered to U.S. markets. The cost of oil affects the cost of electricity and is an item that may affect natural gas prices.

That portion of the DEIS Appendix titled "Environmental Assessment, Proposed Increase in Rates of Tolls for Use of the Panama Canal", was found to be deficient in that it does not provide any indication of the impact of rate increases on oil costs, particularly the cost of Alaskan oil to the east coast.

Alaskan oil is now available for delivery to the lower 48 states. Since production is greatly in excess of the West Coast requirements and handling capabilities, the major immediate alternative is direct delivery to the Gulf Coast via the Canal. If increased costs reduce the attractiveness of that alternative, the result might be greater coal utilization in the eastern states and larger oil imports from foreign countries. This suggests a need to evaluate the air quality and normal hydro-carbon impacts, as well as balance-of-payments impacts.





DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20201

- 2 -

Mr. William H. Mansfield, III

Thank you for the opportunity to review the draft Statement.

Sincerely,

Jack M. Heinemann  
Acting Chief, Energy  
Systems Division

William H. Mansfield III  
Office of Environmental Affairs  
Department of State  
Washington, D.C. 20520

Dear Sir:

Thank you for the opportunity to review the draft Environmental Impact Statement on the New Panama Canal Treaty.

Overall the EIS points to a number of potentially severe environmental concerns, but we can not assess the solutions since it is not possible to predict what a foreign government will do over time without some details as to the framework within which it will be operating. The text of the treaty is not included with the EIS so we do not know precisely what this framework will be. For instance, does it refer to sanitation systems? Will the treaty be followed with working documents on specific agreements on environmental aspects? If so, appropriate concerned Federal agencies could review and then be in a better position to provide more specific comments.

17

For instance, the DEIS discusses the health and sanitation implications of the treaty only in brief and general terms, although these are cited in the Conclusions (page 42) as one of the two environmental consequences of greatest concern. Thus the coverage of the subject appears not to be commensurate with its importance. Although the vital importance of the achievement and maintenance of disease control in the Canal Zone during construction of the canal and thereafter has not been sufficiently discussed, the treaty presumably accommodates these concerns over the treaty period through establishment of a Joint Environmental Commission and the granting to the U.S. "the right to take measures needed to ensure sanitation..."

18

We find that the DEIS addresses health and sanitation only with respect to the immediate area and does not address the broader geographic implications. Also, there is no consideration to circumstances beyond the treaty period.

In addition to the above general concerns which should be addressed, we believe the DEIS can be strengthened by providing specific assurances in the area of health concerns by a more detailed discussion of the following points:

1. The need for and importance of maintaining a special zone ( similar to the present Canal Zone) where special health measures are enforced and services can be provided for the protection of canal operational personnel and transient shipping personnel.
2. The implications for the Panamanian Health Department in terms of manpower, funds and facilities, and an assessment of its capability to assume these responsibilities in the treaty period and beyond.
3. The implications of the change of status of the canal zone as a partial barrier across the isthmus to the transmission of disease through Central America and between South and North America, e.g. hoof-and-mouth disease in cattle and human disease, and the potential for impact on health conditions in neighboring countries and, more distantly, the United States.

With respect to social/programmatic concerns, we feel that a comprehensive planning process has not been clearly defined by the DEIS. Such a planning process should encourage social and environmental efforts to achieve prosperity, growth and development and should address:

1. Cooperative efforts by the Panamanian and United States Governments.
2. A comprehensive program service delivery system (an Implementation plan)
3. Specific requirements for successful and safe maintenance of the Canal Zone by a newly created policy-level Board of Directors.

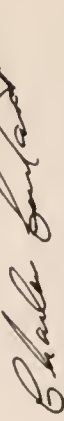
4. Training and technical assistance in the area of social policies and human services. This should be available to Panama Canal Board officials during the development as well as implementation period of the treaty.

We question the degree of concern over the potential decline in employment. The shift of management may possibly alter the present employment situation temporarily. However, since widening the present canal will result in increased economic activities that should create additional jobs, would this not offset the anticipated drop in employment?

We feel that the DEIS should address the need for the new treaty to emphasize technical assistance in scientific and technological training to eliminate repeated violations of the law relating to conversion of forest areas to meet domestic agronomic needs.

The Federal Department through whose appropriation U.S. Government funds are provided for "core" support of the Gorgas Memorial Laboratory in Panama (with one unit in the Canal Zone), the Fogarty International Center, NIH, has had somewhat more than general interest in the Canal area for several years. Unfortunately, the limited review period and the unavailability of the text of the Treaty have somewhat constrained that Agency's review of the DEIS. We understand that the Gorgas Memorial Institute, Washington, D.C., which operates the Gorgas Memorial Laboratory in Panama, will be submitting comments directly to the Department of State.

Sincerely,

  
Charles Custard  
Director  
Office of Environmental Affairs



## United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240

SEP 30 1977

In Reply Refer To:  
ER-77/826

Mr. William H. Mansfield, III  
Office of Environmental Affairs  
Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

We have reviewed the draft environmental impact statement for the New Panama Canal Treaty at your request and wish to offer the following general and specific points for your consideration.

### General Comments

The document lacks specificity on items of importance. For example, a better map clearly showing the locations of the Canal Zone, the Canal, possible third lane of locks or sea-level canal, various special areas discussed in the description of the environment and probable environmental impact sections (e.g., forest and wildlife preserves, natural areas, Farfan Marsh, prime archeological, historic and scenic areas, etc.) is essential. Important environmental values should be specifically identified in the description of the environment. Their range or location should be rather pointedly indicated. Endangered plant and animal species, eroding watersheds, and prime archeological sites should be located. The provisions of the proposed Treaty should also be reviewed more pointedly. A list of specific actions related to Canal operations, pollution control sanitation, safety, and fire prevention should be provided. Specific forest management, watershed management, and related actions which would impact on land use should be stated. Also, specific actions to be taken under the complementary economic cooperation program (see Tab B, page 2) and the watershed management program (see Tab H) should be identified.

This list of specific actions recommended above should be used to examine the impacts on the most important environmental values on a geographically-specific basis. Impacts on wildlife species and land use are of particular importance. There are approximately 20 threatened and endangered species

in the Canal Zone. Because of these weaknesses and the tendency to excuse the Treaty plan, the section on Unavoidable Adverse Impacts, by indicating that a variety of Treaty provisions seek to ameliorate adverse environmental impacts, fails to come to grips with any real summary analysis of potential impacts resulting from the proposal. Also, although some measures to mitigate adverse impacts are identified in the discussion under Alternatives, "Treaty Implementation, with Environmental Provisions" (page 35, paragraph IV.C), a list of more specific mitigating measures, related to the impacts on geographically-specific environmental values discussed above, should be developed.

### Specific Comments

#### Endangered Species

There is no discussion of how the proposed action might affect the endangered species of the Canal Zone. Pages 41-43 of the draft indicate real concern for the possibility of general environmental disturbance. What would be the effects of such disturbance on endangered species, and can such effects be tolerated pursuant to the provisions of Section 7 of the Endangered Species Act of 1973?

Furthermore, the draft statement seems to have confused the U.S. List of Endangered and Threatened Wildlife with the appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. The latter include species that are specifically considered to be subject to trade. The actual List of Endangered and Threatened Wildlife includes species that are in danger of extinction, or which may become so endangered, for any reason. This list currently has 301 species of mammals, and more are being added on a regular basis. The Tab I list of species in the draft environmental impact statement includes some, but not all of the mammals on the U.S. list that occur in the Canal Zone. The omitted mammals are: tiger cat (Felis tigrina), cotton-top marmoset (Saguinus oepidus), red-backed squirrel monkey (Saimiri oerstedii), and spider monkey (Ateles geoffroyi panamensis).

Section 7 of the Endangered Species Act of 1973 requires all Federal agencies to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of endangered or threatened species. The draft environmental impact statement does not refer to this requirement or to how it will be met in implementation of the Treaty.

### Wildlife Conservation

In general, the draft fails to deal with the important question of wildlife conservation in the tropical ecosystem. The future (post-2000) preservation of the entire (or at least a major portion of) tropical forest remains totally unguaranteed. There are no specific assurances that all or most of the involved forests will not be harvested and turned into farmland. As stated in the first paragraph under "Forest Areas and Wildlife" (p. 29), these Canal Zone forests are now islands of forest habitat surrounded (in Panama) by a generally cleared landscape.

The size of each suggested preserve (pp. 29,30), we believe, is too small. On the 6,000-acre Barro Colorado study area there have been many documented cases of mammals and small birds being extirpated. The island is too small to provide for the maintenance of a viable population of many forest animals, including some endangered species. If 6,000 acres of forest were left on the mainland, as if to comprise another "island" of habitat, the results would be the same. Such preserves should contain at least 25,000 acres each in order to provide for adequate conservation of ecosystems.

The land use patterns of Central America clearly demonstrate that forest communities are in danger of being irrevocably lost. The environmental impact statement should pay more attention to this problem, and to its potential effects, especially considering the biogeographical significance of the Isthmus.

### Historical Values

While the statement deals with archaeological values it does not indicate whether historic values have been analyzed. The statement should disclose sites or districts listed in the Register of National Historic Landmarks or the Register of National Historic Places, or otherwise given a designation of national historic significance, together with a discussion of impacts and possible mitigation.

The statement should make reference to the four outstanding historic features identified in the National Park Service Historic Sites Report, "Spanish Colonial Sites in the Panama Canal Zone" (1958): Las Cruces Trail, the Chagres River, Fort San Lorenzo, and the Defenses on Gatun Hill. Of course, the most outstanding historic feature of the Canal Zone is the Canal itself, which would certainly qualify for entry in

the World Heritage list of internationally significant properties. This fact, and the need to continue management of the Canal with this in mind, should be clearly recognized in the statement.

On page 26, last sentence, the statement indicates that archaeological values at Contractor's Hill and Summit Park lie within the Canal use area and, hence, will be under U.S. control and protection. The text should indicate the possibility that jurisdiction over these areas could transfer to the Panamanian Government at some unknown time in the future.

26

### Water Resources

We suggest that ground-water aspects of the Canal Zone's watersheds, including current use or potential use, should be assessed in relation to water supply and sanitation problems of the rural areas and to deforestation and disease control. In the draft statement only the surface-water aspects of these issues are mentioned.

Water quality monitoring and amelioration programs could be initiated in the Canal Zone by both governments consistent with the terms of the proposed treaty.

### Alternatives

Although the possibility of a Canal closing seems remote and the details of the proposed Treaty are unknown in this respect, should not the possible impact of a Canal closing be considered in addition to the effects of the other scenarios presented? We raise this point with respect to how trans-continental, import, and export transportation needs could be met. For example, coal exports from U.S. East Coast ports to Japan could be diverted to alternate routes across the United States. Alaskan oil to Gulf Coast ports and imports from Asia and Australia to East Coast ports could possibly shift to trans-U.S. routes. The major impacts of such potential major diversions in traffic, it seems to us, should be considered.

27

We thank you for the opportunity to review this environmental statement and hope these comments will contribute to its improvement.

Sincerely,  


Larry E. Meierotto  
 SECRETARY

Senior Assistant

U.S. DEPARTMENT OF LABOR  
EMPLOYMENT AND TRAINING ADMINISTRATION  
WASHINGTON, D.C. 20213



NATIONAL SCIENCE FOUNDATION  
WASHINGTON, D.C. 20550




SEP 27 1977

Mr. William H. Mansfield III  
Office of Environmental Affairs  
Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

We have reviewed the draft environmental impact statement for the new Panama Canal Treaty and are satisfied that adequate consideration has been given to its employment impact.

Sincerely,

  
WILLIAM B. LEWITT  
Administrator  
Policy, Evaluation and Research


October 14, 1977

Mr. Lindsey Grant  
Office of Environmental Affairs  
Department of State  
Washington, D.C. 20520

Dear Mr. Grant:

Several individuals were asked to review the DEIS - The New Panama Canal Treaty. The only comments (attached) which we have received concern the section on forest areas and wildlife. If you wish to discuss these comments, please call John Giacomini, 632-7360 and he will put you in touch with the appropriate individual.

Sincerely,

  
Daniel Hunt  
Deputy Assistant Director  
for Operations

Attachment





SMITHSONIAN INSTITUTION  
Washington, D.C. 20560  
U.S.A.

September 26, 1977

1. Without doubt, the existence of the Canal Zone has been a key factor in preserving a wide belt of the isthmian tropical forest. Population pressures would have led to its removal had the area not been under U.S. administration. Such populational and economical pressures are not restricted to Central America, but are global and especially intense in both paleo- and neotropical regions.

2. The section ("1. Forest Areas and Wildlife") beginning on page 29 of the DEIS discusses certain aspects of forest ecosystem conservation and preservation. The section is incomplete in that there is no substantive discussion of the effects on the remaining two-thirds of the Canal Zone not included in the preserve areas. It is imperative that the new treaty preclude the removal of any forest in the Canal Zone except for minor portions immediately adjacent to sites precommitted to development. Equally essential is the inclusion in the treaty of the boundary limits for all Panamanian commercial development in the Canal Zone with an eye toward minimization of the area to be developed and the guaranteed preservation of the residual forest.

3. Barro Colorado Island and its continuation as a research reserve under the administration of the Smithsonian Institution should be made a line item in the treaty. Its fate should not be left to the vagaries of separate negotiations.

Mr. William H. Mansfield III  
Office of Environmental Affairs  
Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

Thank you for the opportunity to review and comment on the draft Environmental Impact Statement for the new Panama Canal Treaty. My comments on this document incorporate the views of the Director and the staff of the Smithsonian's Tropical Research Institute.

The Department should be commended for producing such an extensive report considering the short time available and the inherent problems of negotiating a diplomatic treaty. However, there remain several areas of concern on our part.

The action which will have the greatest impact on the environment is the proposed development program (p.17) between AID and RENARE. This program needs to be addressed fully in any final document and in far greater detail than provided in Tab H. It would also be very valuable to know whether this program has been approved by AID or merely "proposed." The program should protect extant areas as well as undertaking reforestation. Such reforestation should provide a diversity of species and not be limited to monocultures as has frequently been the case in AID programs in Brazil.

The Smithsonian takes strong exception to conclusion drawn on page 23, based on the Battelle report on the sea-level canal. The Smithsonian has consistently maintained that serious ecological consequences could develop from a sea-level canal. The lack of information does not diminish the risk and we support the NAS recommendation that scientific studies be carried out before construction is considered.

30

31

NATIONAL ZOOLOGICAL PARK



SMITHSONIAN INSTITUTION • WASHINGTON, D. C. 20009

October 18, 1977

A number of errors appear in this report which should be corrected for the sake of accuracy. On page 4, hunting restrictions have only a negligible effect on wildlife, and its presence or absence is almost solely due to the size and composition of the forest area. The reference on page 7 to Barro Colorado should be corrected from a total acreage of 6,000 to read 3650 acres. Further on that page, the species of mammals found on BCI should be changed from 65 to 97. The fourteenth line on page 14 should add the following phrase "----trade routes of which the Camino Real and Camino des Cruces are still partially visible in the Madden Lake and Madden Forest Area." Our archeologist's name should be changed from "Cook" to "Cooke." On page 23, we urge that the whole sentence relating the Battelle report be stricken. The reference on page 24 to the crown-of-thorns starfish as a blue-water species should be corrected to read "a shallow-water species." The reference to the new Joint Environmental Commission (page 36) deserves some special attention. Nowhere in the text of this report is there mention of the composition of this body and what charter it shall be given. Will, for instance, the decisions of the Commission be binding on the parties? The effectiveness of such a Commission will be dependent in large measure on its ability to fund studies of environmental interest to the U.S. and Panama. Has any provision been made to provide this body with an operating budget? All of these points should be addressed in the final statement.

It should be pointed out that the report of Dr. Richard Cooke which appears as Tab D in this statement, was prepared over two years ago for the Panama Canal Company, for a specific area. The recommendations in this report should not be construed to apply to the entire Panama Canal Zone.

Two minor points should be noted. The map which appears following page 43, should reflect the Pipeline Road area as forested and the areas west of BCI should be marked as forest. Also, the species list which appears as Tab I contains errors in the scientific names of certain species.

I strongly urge that the concerns pointed out in this letter be addressed in order to strengthen the final report. The Smithsonian is grateful for the opportunity to present its views on an issue of great hemispheric importance.

Sincerely yours,

*David Challinor*

David Challinor  
Assistant Secretary for  
Science

Mr. William H. Mansfield, III  
Office of Environmental Affairs  
Department of State  
Washington, D. C. 20520

Dear Mr. Mansfield:

The Draft Environmental Impact Statement for the New Panama Canal Treaty states concisely the major concerns of biologists over the transfer of Canal Zone lands to Panamanian Jurisdiction. It is the possible destruction of the most accessible (to study) forests and loss of these complex ecosystems that is of utmost concern. It is not an overstatement that the loss of these study areas will mean a decided curtailment of the advance of the ecological and behavioral understanding of tropical evolution.

I have studied avian communication and plant-animal coevolution in the areas mentioned in the report-Pipeline Road, Achiotte Road, Madden Forest. The American Ornithologists' Union asked that I comment on the draft.

I feel that the major points in the draft concerning potential habitat destruction were adequate.

Sincerely,

*Eugene S. Morton*

Eugene S. Morton  
Research Zoologist



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SEP 16 1977

Mr. William H. Mansfield, III  
Office of Environmental Affairs  
Department of State  
Washington, D. C. 20520

Dear Mr. Mansfield:

This is in response to your letter dated August 29, 1977 inviting our comments on the Draft Environmental Impact Statement for the New Panama Canal Treaty, dated August 1977.

We have reviewed the statement and have determined that the proposed action has neither radiological health and safety impacts nor will it adversely affect any activities subject to regulation by the Nuclear Regulatory Commission. We have no comments or suggestions to offer.

Thank you for providing us with the opportunity to review this draft environmental impact statement.

Sincerely,

*Voss A. Moore*  
Voss A. Moore, Assistant Director  
for Environmental Projects  
Division of Site Safety  
and Environmental Analysis

cc: Council on Environmental  
Quality (5)

DEPARTMENT OF STATE  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D. C. 20523

October 4, 1977

Mr. William Mansfield, III  
Office of Environmental Affairs  
Room 7820 New State  
Washington, D.C. 20520

Dear Mr. Mansfield:

The draft environmental impact statement for the new Panama Canal Treaty, August 1977, has been reviewed by the Agency for International Development. No issues of concern have been identified, however, our Latin America Bureau has provided the attached memorandum concerning requests for assistance to improve watershed management. Perhaps the final EIS should contain an update on the status of the A.I.D. project.

Sincerely yours,

*Albert C. Pritz, Jr.*  
Albert C. Pritz, Jr.  
Environmental Affairs Coordinator

Attachment:  
LA Memorandum

UNITED STATES GOVERNMENT

# Memorandum

TO : Mr. Albert Printz, Jr.  
Environmental Affairs Coordinator

FROM : LA/DR/EAD, Gerald Wein

SUBJECT: "EIS for the New Panama Canal Treaty"

DATE: September 9, 1977

The Draft EIS makes several references\* to a Government of Panama request to A.I.D. for assistance to improve watershed management in Panama. The Draft notes that this initiative has been supported by USAID/Panama, and the Mission's Project Identification Document (PID) entitled "Reforestation and Resource Protection" is included in the Draft EIS as Tab H. The Draft EIS recommends that A.I.D./Washington also provide strong support.

That support has been provided. The PID was reviewed in A.I.D./Washington in June and was approved for inclusion in the planned FY 1979 program. The level of the loan was tentatively reduced to \$5 million, but the actual funding provided will depend upon technical analyses to be made during the planning phase now beginning. A.I.D./Washington has cabled instructions to the Mission on project development. A.I.D./W has requested an interim report on progress by April 30, 1978, and the project paper is anticipated early in FY 1979. The proposed program is being included in the Agency's FY 1979 Congressional Presentation.

\*See Pages 17, 31, 37, 38 and 40.

UNCLASSIFIED  
Department of State

PAGE 81 PANAMA 06970 271506Z  
ACTION ARA-14

REALITY OF ITS REVERSION TO PANAMANIAN CONTROL IS PERCEIVED.  
GONZALEZ

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L-03 NSAE-08 NSC-05 PA-02 PRS-01 SP-02 SS-15  
USIA-15 FEA-01 AIO-05 CEO-01 ERO-07 COE-08  
ED-08 EPA-04 IO-14 HCF-02 OES-02 INT-05 /126 W  
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R 271418Z SEP 77  
FM AMEMBASSY PANAMA  
TO SECSTATE WASHDC 3261  
INFO PANCANAL  
USCINCPAC

UNCLAS PANAMA 6978

E.O. 11652: N/A  
TAGS: ENVY, PBOB, PUL, PO  
SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT

1. THE EMBASSY HAS STUDIED THE DRAFT ENVIRONMENTAL IMPACT STATEMENT AND CONCLUDES THAT, ON BALANCE, IT IS AN EQUITABLE AND USEFUL DISCUSSION OF THE POSSIBLE ENVIRONMENTAL RESULTS OF THE APPROVAL OF THE NEW PANAMA CANAL TREATY. WE BELIEVE, HOWEVER, THAT ONE IMPORTANT FACTOR HAS NOT BEEN GIVEN SUFFICIENT EMPHASIS IN THE DRAFT STATEMENT. THIS CONCERNS THE LIKELY ATTITUDES (AND CONSEQUENTLY ACTIONS) OF THE GOVERNMENT OF PANAMA UNDER THE NEW TREATY.

2. LARGE SEGMENTS OF THE PANAMANIAN POPULATION HAVE FOR MANY YEARS BEEN COMPLETELY ALIENATED FROM THE CANAL ZONE COMPANY/GOVERNMENT, IN FACT FROM ALL AMERICANS LIVING IN THE ZONE. BECAUSE OF THIS STRONG EMOTIONAL DISAFFECTION, THERE HAS BEEN A MARKED TENDENCY AMONG PANAMANIANS, INCLUDING MANY OFFICIALS, NOT TO COOPERATE WITH ZONE AUTHORITIES AND TO FIND FAULT WITH ANYTHING WHICH THOSE AUTHORITIES DO. THE PANAMANIAN PRESS CRITICISM OF CANAL ZONE GOVERNMENT ARRESTS OF PANAMANIANS HUNTING AND CUTTING TREES ILLEGALLY IN THE ZONE, MENTIONED ON PAGE 17 OF THE DRAFT STATEMENT, IS AN EXAMPLE OF THIS ALMOST PARANOID INABILITY TO FIND ANY VIRTUE IN THE ZONE. THE SAME NEWSPAPERS CRITICIZE THE ZONE AUTHORITIES' ACTIONS IN APPREHENSION OF CRIMINALS, ADMINISTRATION OF JUSTICE, MANAGEMENT OF THE WATER SUPPLY AND MANY OTHER ACTIVITIES. THUS, TO SINGLE OUT PRESS CRITICISM OF ENFORCEMENT OF ENVIRONMENTAL PROTECTION LAWS IS IN OUR VIEW SPECIAL PLEADING. PANAMANIAN NATIONALISTS OBJECT TO THE CONCEPT OF AMERICAN LAW ENFORCEMENT IN PANAMANIAN TERRITORY, PERIOD.

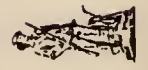
3. AN ADDITIONAL FACTOR IS THAT PANAMA'S LAW ENFORCEMENT PRACTICES MAY MAKE IT EASIER THAN IT IS WHILE THE ZONE IS UNDER U.S. JURISDICTION TO PROSECUTE THOSE WHO ILLEGALLY ENCRONCH ON PROTECTED FORESTS.

4. AS MENTIONED IN THE DRAFT STATEMENT, THE GOP HAS ALREADY ENTERED INTO PRELIMINARY DISCUSSIONS WITH AID RE WATERSHED MANAGEMENT. IN RECENT DISCUSSIONS THE MINISTER OF PLANNING HAS URGED GREATER PRIORITY BE GIVEN TO THE DEVELOPMENT OF AN AID LOAN IN THIS AREA, POSSIBLY IN FY 1978 RATHER THAN FY 1979 AS ORIGINALLY PLANNED. THE RESPONSIBLE GOP AGENCY, RENARE, HAS ALREADY SUBMITTED A PRELIMINARY STUDY PROPOSAL TO THE USAID MISSION UNDER COVER OF A STRONGLY SUPPORTIVE LETTER FROM THE VICE MINISTER OF AGRICULTURE URGING QUICK ACTION ON DEVELOPING A WATERSHED MANAGEMENT PROJECT.

5. THUS, THE COUNTRY TEAM FINDS STRONG POSITIVE EVIDENCE THAT GOP IS TAKING ENVIRONMENTAL CONCERNS SERIOUSLY AND HAS GIVEN INCREASINGLY HIGH PRIORITY TO THE PROBLEM OF PROTECTION OF CANAL WATERSHED AS THE

UNCLASSIFIED

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan



DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

WASHINGTON, D.C. 20591



AUG 31 1977

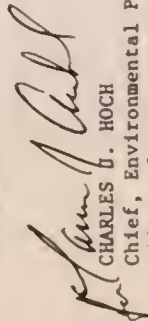
Mr. William H. Mansfield, III  
Office of Environmental Affairs  
Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

We have no comment to offer regarding the draft Environmental Impact Statement for a new Panama Canal Treaty.

Thank you for the opportunity to review and comment.

Sincerely,

  
CHARLES D. HOCH  
Chief, Environmental Policy Division  
Office of Environmental Quality

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

WASHINGTON, D.C. 20590



Mr. William H. Mansfield III  
Office of Economic Affairs  
Room 7820  
Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

We have reviewed the Environmental Impact Statement and are unable to ascertain whether the following facts have been considered:

The FAA now employs 120 U.S. citizens and 10 Panamanians for the provision of air traffic service within the Panama Flight Information Region;

the FAA owns 115 houses and 9 separate facilities which occupy approximately 469 acres in the Canal Zone;

the annual operation budget for FAA is 4.8 million dollars;

the capital investment in communication equipment, navigation aids, radar and other facilities is estimated at 16 million dollars;

the FAA is working with the Department of State in preparing details for discussions with the Panamanian Civil Aviation Authorities concerning the status of FAA personnel facilities and services in the post-treaty era. These discussions are expected to result in an agreement between the U.S. and Panama prior to the exchange of instruments of ratification. Their agreement should provide a plan for a phased withdrawal of FAA and the eventual assumption of the air traffic control responsibilities in Panama by that Government.

If we can assume that the above has been taken into account, we have no further comment.

Sincerely,



E. Lee Jett  
Chief, Operations Liaison Branch  
Office of International Aviation Affairs

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF TRANSPORTATION  
OFFICE OF THE SECRETARY

DATE: OCT 5 1977

SUBJECT: Draft Environmental Impact Statement for the New Panama Canal Treaty

FROM: Acting Assistant Secretary for Environment, Safety, and Consumer Affairs

TO: Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs

The Department of Transportation has completed its review of the draft environmental impact statement for the new Panama Canal Treaty, and we have the following comments to offer:

1. Water Pollution

Aside from listing current laws and regulations (under U.S. jurisdiction), water pollution is not addressed in the draft statement. Unanswered questions in this regard pertain to what arrangements have been made regarding water pollution prevention, response and enforcement after control of the Canal is transferred to Panama.

35

2. Panamanian Development Plans

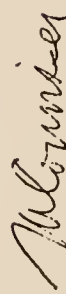
No discussion is included concerning plans by Panama to construct a new Pacific highway and bridge over the Canal. (See paragraph 2 of the Agreed Minute to the Agreement of Implementation of Article IV of the Panama Canal Treaty.) This will be a major construction activity with possible environmental impacts and should be discussed in the EIS.

36

We appreciate the opportunity to comment on this draft environmental impact statement.

DEPARTMENT OF TRANSPORTATION

OCT 11 11 10 AM '77



Martin Convisser



VETERANS ADMINISTRATION  
DEPARTMENT OF VETERANS BENEFITS  
WASHINGTON, D.C. 20420

Date: SEP 8 1977  
In Reply Refer to: 262

Mr. William H. Mansfield, III  
Office of Environmental Affairs  
Department of State  
Washington, D. C. 20520

SUBJ: Draft Environmental Impact Statement for the New Panama Canal Treaty

This is in reply to your request to review and comment on the Draft Environmental Impact Statement for the new Panama Canal Treaty.

The Veterans Administration Loan Guaranty Program has no jurisdiction outside of the United States and its possessions. No comments will be made.



R. C. OON  
Director  
Loan Guaranty Service



Phillip Harman  
Director of Information

**CANAL ZONE NON-PROFIT  
PUBLIC INFORMATION CORPORATION**

2401 H Street, N.W., Suite 402  
Washington, D.C. 20037  
(202) 338-7959

Sept. 9, 1977

Home Office:  
P.O. Box 1133  
Cristobal, C.Z.

COMMENTS ON THE  
DRAFT ENVIRONMENTAL IMPACT STATEMENT

BY

PROVATE ORGANIZATIONS

Mr. William H. Mansfield, 111  
Office of Environmental Affairs  
Department of State, Room 7820  
Washington, D.C. 20520

Dear Mr. Mansfield:

Just a short note to say how so very much I appreciated the excellent and informative document that your office prepared regarding your Draft Environmental Impact Statement for the Panama Canal Treaty. It was a superb job.

With warm regards.

Cordially,

Phillip Harman

September 28, 1977

CENTER  
FOR  
LAW  
AND  
SOCIAL  
POLICY

1751 N STREET N W WASHINGTON D C 20036 202 872 0670

September 28, 1977

COMMENTS ON THE DRAFT ENVIRONMENTAL  
IMPACT STATEMENT FOR THE PANAMA CANAL TREATY

James N. Barnes  
George C. DePaulo\*  
Roger S. Foster  
L. Thomas Galloway  
Marcia D. Greenberger  
Colloz Guerd  
Michael C. Harper  
Christine B. Hickman  
Carol J. Johnson  
Margaret A. Kohn  
J. Davitt McAteer\*  
Leonard C. Meeker  
Marilyn G. Rose  
Lois J. Schiffer  
Herbert Sommer  
Harvey J. Shulman  
Attorney at Law  
\* Not admitted in D.C.

Mr. William Mansfield, III  
Office of Environmental Affairs  
Department of State  
Room 7820  
Washington, D.C. 20520

Dear Mr. Mansfield:

Enclosed please find comments on the Draft Environmental Impact Statement for the New Panama Canal Treaty, submitted on behalf of the groups listed at the end of the comments.

These organizations emphasize that their comments and criticisms of the Draft Environmental Impact Statement do not imply opposition to the Treaty as a whole or to the principles which it supports.

The participating organizations look forward to the State Department's response to their comments.

Sincerely,

*Leonard C. Meeker*  
Leonard C. Meeker  
Attorney

*Don G. Scroggin*  
Dr. Don G. Scroggin  
Law Student Intern  
Center for Law and Social Policy

LCM:DGS/mwm  
Enclosure

I.

ONE OF THE MOST DISTURBING ASPECTS OF THE ENVIRONMENTAL IMPACT OF THE TREATY IS THE POSSIBILITY OF BUILDING A SEA-LEVEL CANAL TO CONNECT THE TWO OCEANS DIRECTLY. IF A FEASIBILITY STUDY OF THIS CANAL IS INITIATED, IT MUST INCLUDE LONG-TERM STUDIES OF THE BIOLOGICAL IMPACT IN CONNECTION WITH THE REQUIRED ENVIRONMENTAL IMPACT STATEMENT.

There should be adequate information before a feasibility study of a sea-level canal is undertaken (p. 23 ff.) Funding should be provided for long-term biological studies to determine the consequences of building such a canal. The Council on Environmental Quality has determined that the National Environmental Policy Act (42 U.S.C. 4332 et seq.) requires an Environmental Impact Statement for U.S. actions abroad. The time period for EIS comments, however, is insufficient for realistic evaluation of the major, long-term environmental impacts of a sea-level canal. The 1970 National Academy of Sciences study warned of "grave potential dangers" of a sea-level canal. The forthcoming update of this study cannot provide the long-term data necessary for competent environmental impact study. A cost-benefit study should be carried out to determine the economic feasibility.

38

The possibility of using nuclear explosives is mentioned in Article XII of the Treaty, but the extensive environmental impacts of such use are not addressed in the EIS. There are grave concerns that a sea-level canal may be extremely unwise from both the economic and environmental points of view.



2. THE EIS SHOULD DISCUSS THE ENVIRONMENTAL IMPACTS OF BUILDING A THIRD LANE OF LOCKS. ALTHOUGH A FULL EIS WOULD BE REQUIRED IF THE U.S. DECIDED TO EXERCISE ITS OPTION TO BUILD SUCH A LANE OF LOCKS, THE ENVIRONMENTAL IMPACTS SHOULD BE CONSIDERED HERE, WHERE THE POSSIBILITY OF A THIRD LANE IS CONSIDERED.
  
3. THE PROTECTION OF FOREST AREAS, IMPORTANT FOR WATERSHED MANAGEMENT, AND OF WILDLIFE SHOULD BE ENCOURAGED AS A HIGH PRIORITY THROUGH FINANCIAL AND EDUCATIONAL ASSISTANCE TO PANAMA. THE EIS SHOULD DISCUSS THE ENVIRONMENTAL AND ECONOMIC IMPACTS OF THE OPTIONS OPEN TO PANAMA.
 

There is great concern that protected forest areas and wildlife may be destroyed by poor management or inadequate funds for the enforcement of Panamanian environmental laws. It is recognized that decisions to preserve these areas must come from Panama. The commenting organizations agree strongly with the EIS's conclusion (p. 31): "In developing plans for the economic assistance which will accompany the Treaty, the U.S. should strengthen Panamanian institutions engaged in promoting conservation, sanitation, and the rational exploitation of that country's natural resources, such as RENARE and IDAAN (the institute for Water and Sewage)." The recent partial funding of the USAID loan for watershed management is to be commended, and further aid should be provided.

The draft EIS is deficient, however, in providing little information on the management goals or options for the affected lands. There is no adequate picture of what the U.S. has done to manage these lands. Our present and past land management should be described, and its effectiveness should be evaluated. There is no adequate discussion of the alternatives open to

Panama and the environmental and economic consequences of different scenarios of Panamanian land management. Any long-term projections of economic consequences of different scenarios of Panamanian land management must include the impact of population growth which will increase demands upon Panama's resources.

Areas of particular concern are the Madden Forest Reserve, the pipeline road from Gamboa to Gatun Lake, and Barro Colorado Island in Gatun Lake, which is the site of the Smithsonian Tropical Research Institute. If these areas are to be protected through proper land management, economic and educational assistance from the U.S. need to be offered to assure that protection of these areas will remain consistent with Panama's desire for economic development. Proper watershed management should seek to preserve water quality as well as water quantity sufficient for operation of the canal.

The EIS should contain cost-benefit analysis of the operations open to Panama, such as use of the protected areas for income production through tourism and employment of land-management personnel, and alternatively, the consequences of unrestrained exploitation. The employment and income impacts of different levels of land management should be considered and compared. Where U.S. economic and educational assistance is necessary, it should be provided. The EIS should calculate the costs and

---

\*/ The present population of Panama is 1.8 million (1977 estimate) with an annual growth rate of 2.68. 43% of the present population is under 15 years of age.

benefits of preserving Panama's options for future use of these areas.

The discussion of the Farfan Marsh (p. 10) is inadequate. There is no mention of whether the marsh is still used for dredge spoil, where dredge spoil is deposited now, or the probable impacts of future use of the marsh.

4. THE DRAFT EIS SHOULD HAVE BEEN ISSUED IN ACCORDANCE WITH COUNCIL ON ENVIRONMENTAL QUALITY GUIDELINES, IN ORDER TO ALLOW A NORMAL PERIOD OF TIME FOR COMMENT FROM INTERESTED GROUPS.

The State Department has apparently disregarded the CEQ guidelines which establish that EISs be prepared "as early as possible and, in all cases, prior to agency decision." The late timing of the EIS and the curtailed period for receiving comments appear not in conformity with NEPA. The State Department should welcome input from interested groups with relevant information and expertise to evaluate the extensive environmental impacts of the major change in U.S. policy.

5. THE JOINT CONTRIBUTORS OF THE FOREGOING COMMENTS ON THE DRAFT EIS FOR THE PANAMA CANAL TREATY WISH TO EMPHASIZE THAT THEIR COMMENTS AND CRITICISMS OF THE DRAFT EIS IN NO WAY IMPLY OPPOSITION TO THE TREATY AS A WHOLE OR TO THE PRINCIPLES WHICH IT SUPPORTS.

American Rivers Conservation Council  
317 Pennsylvania Ave., S.E.  
Washington, D.C. 20003  
(202) 547-6500

Defenders of Wildlife  
1244 19th Street, N.W.  
Washington, D.C. 20036  
(202) 659-9510

\* The Environmental Fund  
1302 18th Street, N.W.  
Room 403  
Washington, D.C. 20036  
(202) 293-2548

Environmental Policy Center  
317 Pennsylvania Ave., S.E.  
Washington, D.C. 20003  
(202) 547-6500

Friends of the Earth  
620 C Street, S.E.  
Washington, D.C. 20003  
(202) 543-4312

Fund for the Animals  
1765 P Street, N.W.  
Washington, D.C. 20036  
(202) 234-4002

Izaak Walton League  
1800 N. Kent Street  
Room 806  
Arlington, Virginia 22209  
(703) 528-1818

National Parks and Conservation Association  
1701 18th Street, N.W.  
Washington, D.C. 20009  
(202) 265-2717

Natural Resources Defense Council  
917 15th Street, N.W.  
Washington, D.C. 20005  
(202) 737-5000

\* Nature Conservancy  
1800 N. Kent Street  
Arlington, Virginia 22209  
(703) 841-5300

World Wildlife Fund  
1319 18th Street, N.W.  
Washington, D.C. 20036  
(202) 466-2160

Sierra Club  
330 Pennsylvania Ave., S.E.  
Second Floor  
Washington, D.C. 20003

Wilderness Society  
1901 Pennsylvania Ave., N.W.  
Washington, D.C.  
(202) 293-2732

These comments on the Draft Environmental Impact Statement for the Panama Canal Treaty are submitted jointly on behalf of the following organizations:

\* The Nature Conservancy, while concurring in these joint statements, has also submitted detailed comments separately.

CENTER  
FOR  
LAW  
AND  
SOCIAL  
POLICY

1751 N. STREET N.W. WASHINGTON D.C. 20036 202 872 0670

- James N. Beane
- George C. DePinto
- Roger S. Foster
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- Colin Guenzel
- Michael C. Haggart
- Christine B. Harran
- Carol J. Jennings
- Margaret A. Kohn
- J. David M. Alton
- Leah J. C. Meeker
- Marilyn G. Rose
- Lois J. Schiller
- Helen J. Simms
- Harvey J. Steinman
- Attorneys at Law
- \* Not admitted in D.C.

12 October 1977

Mr. William Mansfield, III  
Department of State  
Office of Environmental Affairs  
Room 7820  
Washington, D.C. 20520

Dear Mr. Mansfield:

Please amend the comments on the Draft Environmental Impact Statement for the New Panama Canal Treaty, submitted on 28 September 1977, as follows:

- p. 3. first line of second full paragraph: "operations" should read "options."
- p. 5 Please add the following group joining in these comments:

The Environmental Defense Fund  
1825 18th Street, N.W.  
Washington, D.C. 20009  
(202) 833-1484

Your response to the comments, as amended, will be awaited with interest.

Sincerely,

*Leonard C. Meeker*

Leonard C. Meeker

*Don G. Scroggin*

Dr. Don G. Scroggin



# National Audubon Society

950 THIRD AVENUE, NEW YORK, N.Y. 10022 (212) 832-3200 CABLE: NATAUDUBON

September 23, 1977

Mr. William Mansfield, III  
Office of Environmental Affairs  
(Room 7820)  
Department of State  
Washington, D.C. 20520

Re: Draft Environmental Impact Statement for the new Panama Canal Treaty

Dear Sir:

The National Audubon Society offers the following comments pursuant to the Department of State's letter of August 29, 1977 conveying the Draft Environmental Impact Statement for the new Panama Canal Treaty. National Audubon is joined in these comments by the Florida Audubon Society.

Comments were requested by September 28, a review period officially reduced from 45 to 30 days. Inasmuch as the letter and Statement were not received until September 8, the period for review was effectively reduced to only 20 days.

The limited review period presents difficulties even for organizations based in this country. It imposes an intolerable burden on those like the Panama Audubon Society located outside the country. These comments do not speak for Panama Audubon, which we hope will be able to make its own submission. We request on their behalf that the deadline be extended to permit the inclusion of their comments.

We do not feel it useful at this point to take issue with the numerous procedural defects in the Department's environmental impact process; we are impelled, however, to note that in our view they are in violation of both the National Environmental Policy Act and of the Department's own regulations.

Our comments cover three broad areas: I. Canal Zone natural areas; II. institutional mechanisms, including the Joint Environmental Commission and existing Panamanian institutions; and III. the Sea-Level Canal feasibility study proposed in Treaty Article XII.

#### I. Canal Zone Natural Areas

The discussion in DEIS Section I (C)(1) and in Section III of Canal Zone natural areas sets forth in general terms the importance of these areas, especially of the Zone's lowland rain forests -- their value for science, for nature study and as a refuge for migratory and endangered species. It also recognizes the critical contribution of their watersheds and of those outside the Zone to the maintenance of the Canal. The information about these important areas is, however, scanty, and we would hope that the Final EIS would provide more detail.

Irrespective, however, of the recognition in the DEIS of the importance of Canal Zone natural areas, the basic fact remains, as stated in EIS Section III (D)(1), that the greatest area (about 2/3rds) of the Canal Zone, as well as the greater part of the areas identified in the Statement as of potential interest to environmental organizations, will fall under Panamanian jurisdiction and that its protection will depend directly on Panamanian legislation and enforcement.

We would welcome further detail as to how these key areas are expected to be protected, including perhaps a record of exchanges which have taken place in this regard between the U.S. and Panama. But we recognize that the Treaty provides no guarantees of protection. We recognize also that it is too late to secure such guarantees. How well these areas are protected depends on the will of Panama, the influence of the Joint Environmental Commission to be established under the Treaty and on funding for Panamanian institutions concerned with natural area protection.

We reiterate our view previously expressed to the Department that the U.S. Government should promptly promulgate appropriate game laws for the Zone.

#### II. Institution Mechanisms

We agree with the DEIS assessment that the Joint Environmental Commission provided in Article VI of the Treaty offers an important opportunity for cooperation between the environmental community in the United States and in Panama and a sound approach to continuing protection for Canal Zone natural areas.

We note that the DEIS is silent as to the precise role of the Commission, the procedures under which it will operate and as to its composition. We request that the Final EIS provide more information on these points. It is extremely important in our view that the Commission be made up of individuals with demonstrated environmental expertise such as representatives of the Panama Audubon Society and of the Smithsonian Tropical Research Center.

A related issue and one of the utmost importance is the question of funding for natural area protection. The creation of mechanisms for environmental cooperation and understanding and all the good will on both the Panamanian and U.S. sides will avail nothing without the financial assistance necessary to environment planning and enforcement efforts. We enthusiastically endorse the proposal for a USAID/Panama Reforestation and Resource Protection project with RENARE; we urge funding to the full extent necessary.

#### III. Sea-Level Canal

We regret the commitment in Treaty Article XII to the feasibility study of a sea-level Canal. The statement in the DEIS that previous studies have provided no firm evidence of potential environment danger from such a Canal is in our opinion without weight. Clearly studies to date are inadequate to prove its harmlessness.

The Final EIS should make explicit that the Treaty commitment will in no way exempt the decision as to any subsequent U.S. action from the NEPA process.


#### Conclusion

We deplore the NEPA violations which have occurred and the failure of the Government to consult us and the Florida and Panama Audubon Societies at a date early enough to have permitted our recommendations for the protection of specific natural areas to be guaranteed under the Treaty process.


At this point, however, the alternatives of no action on the Treaty, postponement of the Treaty or of a new Treaty do not appear viable. They would not, in our view, assure the protection of the resources which concern us; indeed they could seriously impair the spirit of common concern for the environment which is reflected in the Treaty and in the DEIS.

The DEIS contains excellent language with regard to the importance to Panama of protecting its natural heritage. The joint cooperative mechanism to be established and the funds which can be made available to implement such protection offer the opportunity for Panama and the U.S. to work together to achieve it. We therefore support the alternative of Treaty implementation, with environmental provisions.

Sincerely yours,



Chaplin B. Barnes  
Director of International Activities



*Panama Audubon Society*

P.O. Box 2026, Belben, Canal Zone  
Aptdo. 10444, Panamá 4, República de Panamá

September 26, 1977

Mr. William H Mansfield III  
Office of Environmental Affairs  
Department of State  
Washington, D. C. 20520

Re: Draft Environmental Impact Statement for the  
New Panama Canal Treaty

Dear Mr. Mansfield

In response to the request for comments to the draft Environmental Impact Statement for the new Panama Canal Treaty I offer the following views as scientific committee chairman, Panama Audubon Society.

The biological value of Canal Zone lands as they now exist is incalculable. Seventeen species of mammals, birds, and reptiles protected by the Endangered Species Act of 1973 and an additional six species listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973, have been recorded from the Canal Zone. One species, the West Indian Manatee, has dual protective status inasmuch as it is also listed in the Marine Mammal Protection Act, 1972. (see attached)

Ten endangered mammals, including jaguar, manatee and tapir exist here and one of the largest American crocodiles known to exist in the wild has lived near Miraflores locks for more than 20 years where it has become a local attraction.

Forested areas of the Canal Zone represent the largest, readily accessible tract of tropical forest in Latin America. One area, the Gamboa pipeline area, described by an author of Panama birds as the best birding area in Central America, also has jaguar, puma, ocelot, margay, jaguarundi, howler monkeys and a rarely-sighted Harpy eagle (all endangered species) within its 28,000 acres.

Portions of this area and the Madden Forest Preserve, established by Act of Congress, May 1930, have been deforested the last two years by slash-and-burn agriculturists. A part of the Las Cruces trail in the Madden Forest Preserve, used by forty-niners on their way to the California gold fields now passes thru corn fields. Air survey of the Canal Zone land boundaries shows rural farms, corn fields, and cattle pastures encroaching on all sides. Over 80% of Gatun lake watershed and approximately 40% of that of Madden lake has been deforested since 1952, according to data available from personnel of the hydrographic division.

I note the draft records these facts and events but wish to reemphasize their significance and the concern of local conservationists in Panama and the Canal Zone.

More than 560 species of birds have been recorded from Canal Zone waters and forested areas. The Panama Audubon Society has conducted 15 one-day Annual Christmas bird counts within the Canal Zone in the last five years and each has exceeded 200 species. The highest one-day bird census in the world is 333 species recorded in the Canal Zone last year. Many of these birds are forest dwellers, many possess poor flying ability, are dependent upon unique habitat, or have special food requirements. Many will die if their environment is destroyed or excessively altered.

The Fort Sherman-San Lorenzo area on the Atlantic side of the Isthmus and the central located pipeline area are of greatest concern to local and International conservationists. A check-list of birds of the pipeline area (enclosed) indicates 235 species (please correct draft, pg 9) of native birds live in this forest. During bird migratory season an additional 35 species move into or thru from North and South America. A similar list in preparation for the Fort Sherman-San Lorenzo area may exceed this number.

The Panama Audubon Society maintains records verifying the occurrence of the species and numbers of birds, mammals, and reptiles presented above.

The Limbo hunt club in the pipeline area, no longer used for hunting, has been used by biologists for more than 7 years as a base from which to study tropical ecology. Students from many North American colleges and Universities and from England, Australia and Brazil have worked out of the camp for a few days to 6 months. Many persons from Smithsonian Tropical Research Institute have complemented studies on Barro Colorado Island with parallel studies in the pipeline area.

It is certain that the greatest diversity of banded native birds occur on Isla de Maje in the recently formed Bayano lake in the Darien province of Panama. It is probable that the next greatest numbers occur in the vicinity of the Limbo camp.



ENDANGERED SPECIES IN THE CANAL ZONE

Animals listed in the Endangered Species Act, 1973, known to occur in the Canal Zone, are:

MAMMALS

- Mantled Howler Monkey
  - Red-backed Squirrel Monkey
  - Red Spider Monkey
  - Costa Rican Puma
  - Jaguar
  - Ocelot
  - Margay
  - Jaguarundi
  - West Indian Manatee
  - Central American Tapir
- Alouatta palliata (villosa)
  - Saimiri oerstedii
  - Ateles geoffroyi
  - Felis concolor costaricensis
  - Panthera onca
  - Felis pardalis
  - Felis wiedii
  - Felis jagouarundi panamensis
  - Trichechus manatus
  - Tapiris bairdii

BIRDS

- Brown Pelican
  - Florida Everglade Kite
  - Harpy Eagle
  - American Peregrine Falcon
  - California Least Tern
- Pelecanus occidentalis
  - Rostrhamus sociabilis plumbeus
  - Harpia harpyja
  - Falco peregrinus anatum
  - Sterna albifrons browni

REPTILES

- American Crocodile
  - Brown Caiman
- Crocodylus acutus
  - Caiman crocodillus fuscus

In addition to all of the above species, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973, includes the following animals known to occur in the Canal Zone:

MAMMALS

- Two-toed Sloth
  - Naked-tailed Armadillo
  - Olingo
  - Grison
  - Long-tailed Otter
- Choloepus hoffmanni
  - Cabassaus centralis
  - Bassaricyon gabbii
  - Galictis allamandi
  - Lutra annectens

BIRDS

- Great Curassow
- Crax rubra

The Marine Mammal Protection Act, 1972, lists several species of whales and sea turtles from Panama seas and the West Indian Manatee, Trichechus manatus, known to occur in Gatun Lake, Canal Zone.

A STRI publication, Bibliography of Papers Pertaining to the Natural History of Barro Colorado Island, C. Z., 1960, lists 1454 publications dealing with the Isthmus and its flora, fauna, and geology. Additional bibliographic information lists another 617 publications thru FY 76.

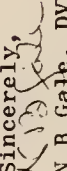
The value of base line data provided by this volume of work is extraordinary; the continued existence of these areas for this reason alone is obvious.

Other reasons exist. In addition to the obvious need for maintaining the watershed necessary to provide for adequate ship transit, the potential economic value as a wildlife preserve with controlled access into areas like the pipeline road for bird watchers, photographers, and persons with related interests, may be considerable. The area is well-known internationally, three North American bird tours plan to fly members to Panama this December to participate in the Christmas counts. They will also visit Sierra Campana, Volcan Baru, Isla de Maje, and areas in the Darien. Their average stay in the Republic is 2 weeks. Their activities require assistance from local persons knowledgeable in the wildlife in areas visited as well as expenses for transportation, lodging, meals and other items. Increased wildlife preserves will require guides, guards, and other paid positions to assist visitors. They will logically come from local people who know the area.

Many persons in Panama; at Gorgas Memorial Laboratories, RENARE, IDAAN, and at the University of Panama have great concern for the flora and fauna of the Canal Zone. They have an equal concern for that of Altos de Maje, Pacheca Island, Fortuna, Sierra Colorado, Volcan Baru, and areas in the Darien. If AID funds to assist Panamanian institutions engaged in promoting, conservation, sanitation and the rational exploitation of that country's natural resources" (pg 31) are available they should be generous enough to provide impetus for all the projects.

Incidentally, new laws regulating hunting within the Canal Zone, protecting all Endangered species, eliminating hunting pressure for a reduced number classified as game animals and offering complete protection for all others will go into effect Oct. 1, 77, and the Gamboa pipeline area has been posted against hunting by decree of the Governor. Both of these were encouraged by the Panama Audubon Society and the active participation of this member.

The Panama Audubon Society will be pleased to provide additional information if requested.

Sincerely,  
  
 N B Gale, DVM  
 Chairman, Scientific Committee  
 Panama Audubon Society.

GORGAS MEMORIAL INSTITUTE

OF  
TROPICAL AND PREVENTIVE MEDICINE  
INCORPORATED

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WASHINGTON, D. C. 20006

JACK W. MILLAR  
CHAIRMAN  
HAMILTON B. WEBB  
VICE PRESIDENT  
MARY E. CORNING  
SECRETARY

15 September 1977

Ref. No. 232-77

Mr. William Mansfield III  
Office of Environmental Affairs  
Room 7820  
Department of State  
Washington, DC 20520

Dear Mr. Mansfield:

This letter provides the comments of the Gorgas Memorial Institute of Tropical and Preventive Medicine on the Draft Environmental Impact Statement for the New Panama Canal Treaty.

The Canal, the treaty, and the various documents which support the present negotiations are concerned principally with the Isthmus as a passageway from ocean to ocean for ships. But the Isthmus is also a land passageway from continent to continent for diseases and plagues. The migrations of yellow fever and of Venezuelan equine encephalitis by way of the Isthmus have been documented. Other diseases of international importance, present in South America and known to spread, are vesicular stomatitis of cattle, hoof-and-mouth disease, malaria, and leishmaniasis. Perhaps hybrid bees could be included in this catalog, which is by no means exhaustive.

In the Canal Zone, a high level of sanitary engineering effort has been almost unvarying for more than 50 years. The intact Zone has been under the same standard, administered by a single agency. This has presented an epidemiological barrier to the migration of disease. Furthermore, the professional health personnel on duty in the Zone have provided an epidemiological early disease warning system for diseases of both human and animal (agricultural) importance. These diseases are of importance not only to people in Panama, the Zone, and in transit through the Canal. They are very important to the peoples of Venezuela, Colombia, Costa Rica, Nicaragua, El Salvador, Honduras, Guatemala and Mexico.

In the Draft Environmental Impact Statement, the following statements appear:

Page 21: "...the proposed treaty stipulates that the Panama Canal Company/Canal Zone Government will discontinue...quarantine controls not necessary for the sanitation of the Canal."

47

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| Broad-billed Motmot          | Slate-headed Tody-Flycatcher |
| Buff-breasted Nighthawk      | Southern Oriole              |
| Blue-crowned Tanager         | Yellow-capped Tyrannulet     |
| Great Jacamar                | Yellow-bellied Tyrannulet    |
| White-necked Puffbird        | Forest Kinglet               |
| Black-breasted Puffbird      | Gray Finch                   |
| Pied Puffbird                | White-bellied Tanager        |
| White-throated Puffbird      | Yellow-crowned Tyrannulet    |
| Collared Aracari             | Olive-striped Flycatcher     |
| Keel-billed Toucan           | Orange-bellied Flycatcher    |
| Chestnut-mandibled Toucan    | Gray-breasted Merlin         |
| Yellow-eared Tanager         | White-thighed Swallow        |
| Cinnamon Woodpecker          | Plain Wren                   |
| Lineated Woodpecker          | Bay Wren                     |
| Red-chinned Woodpecker       | Black-bellied Wren           |
| Black-chinned Woodpecker     | Rufous-breasted Wren         |
| Crimson-crested Woodpecker   | White-breasted Wood-Wren     |
| Crimson-bellied Woodpecker   | Sage Wren                    |
| Piety Woodpecker             | Mistletoe Wren               |
| Ruddy Woodpecker             | Clay-colored Robin           |
| Lead-billed Woodcreeper      | Spot-tailed Gnatcatcher      |
| Wedge-billed Woodcreeper     | Long-billed Gnatcatcher      |
| Carroll Woodcreeper          | Tawny-faced Gnatcatcher      |
| Rufous-throated Woodcreeper  | Green Shrike-Vireo           |
| Black-striped Woodcreeper    | Yellow-green Vireo           |
| Rufous-rumped Flycatcher     | Lesser Greenlet              |
| Buff-throated Flycatcher     | Dunniwren                    |
| Pale Scops                   | Shining Honeycreeper         |
| Scaly-throated Leafcreeper   | Red-tailed Honeycreeper      |
| Speckled Antbird             | Green Honeycreeper           |
| Great Antbird                | Black-bellied Honeycreeper   |
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| Slaty Antbird                | Chestnut-capped Warbler      |
| Russet Antbird               | Buff-rumped Warbler          |
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| Piety Antbird                | Yellow-rumped Cuckoo         |
| Streaked Antbird             | Yellow-tailed Oriole         |
| Shacker-throated Antbird     | Yellow-backed Oriole         |
| Black-throated Antbird       | White-vented Euphonia        |
| Dusky Antbird                | Yellow-crowned Euphonia      |
| White-bellied Antbird        | Rufous-vented Euphonia       |
| Dull-mantled Antbird         | Thick-billed Euphonia        |
| Colorful Antbird             | Black-headed Tanager         |
| Spotted Antbird              | Blue-headed Tanager          |
| Ocellated Antbird            | Blue-gray Tanager            |
| Black-faced Antbird          | Crimson-backed Tanager       |
| Black-crowned Antbird        | Yellow-rumped Tanager        |
| Streak-crowned Antbird       | Carmaline Tanager            |
| Blue-crowned Manakin         | Red-throated Ant-Tanager     |
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| Black-capped Manakin         | Tawny-crested Tanager        |
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| Broad-billed Manakin         | Gray-headed Tanager          |
| Blue Collared                | Dusky-faced Tanager          |
| Bright-rumped Attila         | Rufous-throated Saltator     |
| Spot-tailed Attila           | Streaked Saltator            |
| Scarlet Tanager              | Slate-colored Grosbeak       |
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Page 30: "....there will be large areas in which environmental protection will depend upon Panamanian legislation and enforcement."

Page 31: "....the U.S. should strengthen Panamanian institutions engaged in promoting....sanitation."

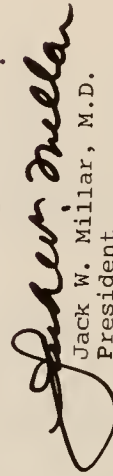
Page 42: "An increase in insect-borne disease, particularly malaria....would appear to justify the greatest concern....if present land maintenance and sanitation practices are not adequately funded and maintained."

Political changes and international realignments are often followed by epidemics. Change of control of the land, inadequate funding, insufficient numbers of personnel, inadequate skills, uncoordinated planning, incomplete coverage, illicit land practices, the movement of people across relaxed frontiers, and interrupted surveillance may allow the existing epidemiological barrier to become porous to all kinds of diseases and plagues, even though all elements related to the operation of the Canal per se remain functional.

The Gorgas Memorial Institute therefore presents only the recommendation that a section of the draft Environmental Impact Statement be added which specifically addresses the regional or international health problems because the Isthmus of Panama is not only a water passage from ocean to ocean, but also a land bridge from continent to continent. If such a section were added, it would provide a basis for continuing actions to prevent the spread of human and animal diseases, to sustain the remarkable international health asset of an epidemiological barrier, and to ensure large economic savings for the future.

The opportunity to comment on this document at this time is appreciated. We look forward to receiving further information on this subject. Gorgas Memorial Institute and its supportive activities are available for immediate service.

Sincerely yours,

  
Jack W. Millar, M.D.  
President

48



# National Wildlife Federation

1412 16TH ST., N.W., WASHINGTON, D.C. 20036

Phone: 202-797-6800

September 28, 1977

Mr. William Mansfield, III  
Office of Environmental Affairs  
Room 7820  
Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

The National Wildlife Federation provides the following comments concerning the Draft Environmental Impact Statement (DEIS) for the New Panama Canal Treaty. The Federation, as a national, nonprofit, educational organization, has not taken a position concerning the social, political, economic or military aspects of the treaty. We have restricted our comments to its environmental consequences.

In this regard the Federation finds the State Department's considerations of environmental impacts deficient in two major aspects: deforestation and future agreements.

### Deforestation

The DEIS states that there "will probably be some deforestation in Canal Zone areas turned back to Panama" but does not indicate the location(s) or extent of such anticipated deforestation. In addition, it does not adequately address the effects of such deforestation upon the wildlife, soil and water. Studies of economic conditions and land management practices in the Republic of Panama, accompanied by information on the commercial values of the forested areas within the Canal Zone, would shed some light on the extent of deforestation which can be expected.

Panamanian squatters have invaded their own National Park lands, cutting and burning the forest. No adequate discussion of the extent of this problem or of its potential expansion into the Canal Zone forests is included in the DEIS.



# National Wildlife Federation

Mr. William Mansfield, III

-2-

September 28, 1977

Although there are Panamanian laws regulating hunting and protecting Endangered Species, these laws have been virtually unenforced. Even though the DEIS acknowledges the presence of some Endangered Species, it fails to mention: what steps have been taken to determine the populations of these species; what steps have been taken to determine whether the areas contains habitat "critical" to these species within the meaning of Section 7 of the Endangered Species Act; and what measures can be taken and are proposed to ensure that these species will not be further endangered by the implementation of these treaties.

## Future Agreements

The DEIS refers to future agreements for which separate Environmental Statements will be prepared. The DEIS fails to indicate the scope of these agreements or their environmental impacts. One example is the discussion of the proposal to build a third lane of locks. The DEIS states that: "There have been no studies and surveys on the environmental impact of the construction of a third lane of locks to the present canal." The DEIS does not inform the public that this plan would involve the abandonment of two sets of locks, the addition of three new sets of locks, the raising of Gatun and Miraflores Lakes to a 92' level, and that it would require additional impoundment and pumping of sea water which could be environmentally disastrous.

Likewise, the impacts of a sea-level canal are not adequately discussed. In 1970, a National Academy of Sciences Panel warned of potential dangers resulting from a sea-level canal: "A new canal will affect the animal and plant life at the two oceans, but what these effects are cannot be determined unless the nature of the differences between the biota and the ecosystems of the two oceans are first carefully established through years of intensive research." No such research has been initiated by the State Department; consideration of the possible environmental impacts of such a canal, therefore, and commitments to its construction cannot lawfully take place in decision-making processes involving these treaties. The two-month study being conducted by the National Academy of Sciences is certainly no substitute for "years of intensive research."

In addition to these environmental deficiencies of the DEIS, it seems clear that the Department of State failed to adhere to NEPA procedures. The purpose of NEPA is to insure that environmental consequences of Federal Agency actions will be recognized and considered during the Federal decision-making process and not after. The DEIS should have been prepared when the present round of negotiations began in 1973. Published State Department procedures mandate that draft statements will, where possible, be prepared and forwarded to the Council on Environmental Quality (CEQ)

# National Wildlife Federation

Mr. William Mansfield, III

-3-

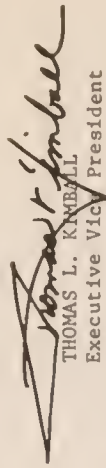
September 28, 1977

prior to the commencement of negotiations intended to produce a final international agreement. At a meeting held August 5, 1977 at the CEQ, officials of the Department of State indicated that it had not yet been determined whether or not an impact statement should be prepared. Yet, the DEIS was issued August 29, 1977, just 24 days later.

It is quite clear from these facts that NEPA had no impact on the Federal decision-making processes involving the treaties.

In conclusion, the National Wildlife Federation finds that the DEIS fails to provide adequate and necessary information relative to proper assessment of deforestation and future agreements. We urge the State Department to consider these problems in depth, and to make future recommendations to redress them. We appreciate the opportunity to make these remarks.

Sincerely,



THOMAS L. KINBALL  
Executive Vice President

cc: The Honorable Jimmy Carter, President  
The Honorable Cecil D. Andrus, Secretary of Interior  
Chairman, Senate Committee on Foreign Relations  
Chairman, Council on Environmental Quality

# The Nature Conservancy

1800 North Kent Street, Arlington, Virginia 22209  
(703) 841-5300

September 7, 1977

Mr. William H. Mansfield III  
Office of Environmental Affairs, Room 7820  
Department of State  
Washington, D. C. 20520

Re: Draft Environmental Impact Statement  
for the New Panama Canal Treaty

Dear Sir:

On 30 August 1977 the Department of State made available the "Draft Environmental Impact Statement for the New Panama Canal Treaty." The Statement requested that parties who desired to offer comments should communicate their views in writing to you prior to 29 September 1977. The following views are submitted on behalf of The Nature Conservancy as requested in the above captioned Statement.

## I. Introduction

Subject to the specific comments and/or qualifications stated below, we agree with the conclusion of the Environmental Impact Statement that "...The treaty does therefore represent an environmentally sound course of action." (p. 43)

Regarding the new Canal Treaty, we recognize that the question of the environmentally soundest alternative must be based upon one's best judgment of what is likely to occur rather than any certainty of what will, in fact, occur. As a general matter, we share the "best judgment conclusions" of the Statement. With one major exception, we believe that the Impact Statement cannot be faulted for its lack of absolute assurance of the ultimate impact of the treaty or the alternative courses of action.

## II. Areas of Environmental Concern

The Nature Conservancy is a U.S. not-for-profit conservation organization whose primary goal is the preservation of natural land and the diversity of life it supports. We have a modest international program which has focused its attention on the Caribbean, Latin America and Canada. It is this goal to assist with preservation of critical natural areas outside this country which leads us to comment on the proposed treaty with Panama. We would like to comment briefly on why we believe that areas exist within the Zone which deserve international support for protection.

Mr. William H. Mansfield III  
September 7, 1977  
Page 2

Scientists have identified within the existing Canal Zone two areas of international scientific importance: the pipeline road area northwest of Gamboa and the Fort Sherman - Fort San Lorenzo area on Limon Bay. The U.S. Fish and Wildlife Service has stated that there are twenty endangered species in the pipeline road area and this same area is internationally famous for its bird life. A great degree of research has been conducted in this forest providing a base line of educational and scientific knowledge quite unique for tropical forest areas which would make this forest incredibly valuable as a Unesco Man in the Biosphere reserve. This forest also provides a special opportunity for reviving the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere to which both the U.S. and Panama are signatories. These tropical forests, the natural system disappearing faster than any other type, are the most accessible anywhere in the Hemisphere and therefore of immense value for science, research and education.

While the above reasons briefly explain the high priority placed on these areas by the international scientific community, there are other justifications for protection of these forests. First and foremost, the pipeline road area particularly is part of the critical watershed which must be protected to maintain the basic economic viability and operations of the Canal. Panama completely recognizes the special relationship between the Canal and the natural systems upon which the Canal depends. In considering the compatible uses of these watershed areas, a high priority should be placed on establishing a significant portion of the pipeline road area as a national park or wildlife reserve. Such use would certainly be compatible with watershed protection. We believe that it would also create revenue. Panama has a unique "captive audience" estimated at 90,000 people who pass through the Canal, many without ever leaving their boat. With 285 species of birds in the readily accessible pipeline road area, 230 of which do not occur outside the Tropics, a considerable amount of additional tourism could be generated if the area were property promoted. These people represent a not unconsiderable potential source of foreign exchange for Panama. The park would also provide employment through the need for park guards, guides and other services to accommodate and assist visitors. It has been suggested that indeed a greater number of people would be permanently employed in this manner than the area could support after it is cut over. No economic analysis has yet been undertaken to verify this proposition but agencies must look into this question before the area is irreplaceably committed to other uses. Once gone, the choice will never again exist.

There is another justification which is difficult to state exactly and yet which may, over time, be the strongest economic argument of all. The tropical forests are already recognized as a biological resource of incredible value yet we have only just begun to find economic uses for what exists in this richest of all expressions of life on earth. The Brazilian, Amaro Theodoro Damasceno, said it beautifully when he described ill-conceived farming and logging in tropical forests as "destroying gold for the production of silver." Of course, it is difficult when facing demands on these forests in the present to talk about what might be found in them someday in the future -- it requires



grest leadership and foresight. Yet that future may not be too far distant. To cite just one example, work is already underway to use selective cutting of certain tropical wood which can be processed into cattle feed. If successful, this approach can support far more cattle than the same land when cleared of forest. For this process to work on a sustained basis, however, it is essential that the basic integrity of the forest remain intact in order that the fungi which are the key to the system can survive. As research on tropical forests continues one thing does appear clear -- the forest community seems to be an indispensable component of the natural productivity system upon which any sustained development will depend both in the Zone and elsewhere in Panama.

The same accessibility which makes these areas so important internationally applies even more strongly to the people of Panama itself. To have the type of recreation and education resource which these areas represent so near to the major population centers is extraordinary. A report on Ecological Principles for Economic Development stated, "Since wild areas are becoming increasingly scarce, their value increases proportionately with passage of time and disappearance of comparable areas." Wild areas which are both disappearing and are also accessible are an even more rare and valuable asset. In many ways, we feel this is the strongest rationale of all. International recognition, tourism and revenue can help finance creation of parks and spread the costs of operating them; however, the areas referred to should be preserved for the education, enjoyment and future of the people of Panama. We believe that Panama shares this aim and with our cooperation and assistance it will be accomplished. These comments are aimed at furthering that goal.

### III. Probable Environmental Impacts

#### A. Impacts in Panamanian Land and Water Use Areas (Forest Areas and Wildlife)

The aspect which is the major focus of concern of The Nature Conservancy is the impacts of the Treaty in Panamanian Land and Water Use Areas and more particularly Forest Areas and Wildlife referred to above. As the Statement points out, the future of the tropical forests in the present Canal Zone is of great ecological importance.

Panamanian legislation provides an adequate legal base for protection of these areas. The Panamanian officials with whom I have met are fully cognizant of the importance of these areas, and particularly the pipeline road area, to insure the watershed upon which the Canal depends for its operation. They also have specific proposals from Panamanian institutions and individuals under consideration which could lead to the establishment of a park or an equivalent reserve in the vicinity of the pipeline road. Should the Panamanians choose to protect these forests, I see no basis for concluding that these efforts would be any less sincere than our own. However, as the Statement points out, the effectiveness of enforcement could be hampered by essential competition for funds with other development needs in Panama. It

is in this regard that the U.S. can help assure that adverse environmental impacts are minimized and where, in our opinion, such assurance is not yet provided.

The major step described in the Statement to assist Panama and therefore to avoid or minimize extensive deforestation of these critical tropical forest areas is the "proposed" (p. 37 and 38) AID watershed management project of the U.S. AID Mission.

First, the statement correctly points out these matters "can be addressed by the United States Government only on a basis of cooperation with the Government of Panama" (p. 42); however, there is no such impediment regarding the AID project where cooperation has already been sought by Panama (p. 31).

Second, the Statement is unclear whether, were the AID project to be approved, it would include protection of these mature forests as well as reforestation of already denuded areas and encouragement of timbering within the still intact forests. In addition, with AID's new Congressional mandate, we would hope that the project would specifically deal with the environmental issues raised by the treaty regarding actual protection as well as timbering and reforestation.

Third, and most importantly, the statement that the Watershed Management Project "deserves high priority and strong support from AID Washington" (p. 31) does not provide adequate assurance that the environmental impact of the treaty will be minimized. If our information is correct, the AID project has already been accorded a very low priority and little, if any, support from AID Washington. We believe that this project was rejected last year by AID Washington and only approved this year in the (unlikely) event that full AID funding were approved by Congress. If this information is incorrect, we would appreciate being so informed and the Impact Statement should reflect the actual status of the AID project. If this information is correct, then the statement that it deserves support, while true, is somewhat misleading concerning the actual prospects of minimizing environmental impacts through this AID project.

Our conclusion is that the Watershed Management Project has been requested by Panama and has been submitted for consideration. The approval and funding, as a high priority, is of major import in minimizing the environmental impacts which might result from the Treaty and such a decision rests solely with the United States. We see no reason why the approval of this AID project should be treated as one of those matters where "no absolute assurance exists." On the contrary, this is one of the few areas where it should be possible prior to ratification of the Treaty to state categorically that the U.S. not only should but has committed itself to strengthen Panamanian institutions by approval of the AID Watershed Management Project.

B. Impacts on U.S. Land and Water Use Areas (3rd Lock and Sea-Level Canal Options)

(1) Sea-Level Canal

As you are certainly aware, there have been serious concerns expressed regarding the inclusion of a sea-level canal as a part of the Treaty with Panama.

The Impact Statement acknowledges a divergence of opinions but chooses to quote one view that there is "no firm evidence" to support various pre-conditions of disaster. It would seem equally valid to conclude that there is "no firm evidence" that the environmental risks are "acceptable." We support the general statement expressed some years ago by Fritz Schumacher, "The burden of proof is [traditionally] placed on those who take the 'ecological viewpoint': unless they can produce evidence of marked injury to man, the change will proceed. Commonsense, on the contrary, would suggest that the burden of proof should lie on the man who wants to introduce a change; he has to demonstrate that there cannot be any damaging consequences." If the burden of proof is placed on those proposing to take this risk and any future consideration remains explicitly subject to NEPA and if major activities, including feasibility studies, occurs only after extensive environmental studies, we see no objection to the inclusion of the sea-level canal option in the Treaty. In other words, it should be clear that approval of the Treaty and the Impact Statement does not thereby authorize or permit construction of a sea-level canal but only provides for such a future option between the U.S. and Panama. We feel explicit assurances in this regard should be included in the final Statement.

(2) Third-Lock Option

It is our belief that there are similar concerns regarding a third lane of locks which might require conversion of Gatun Lake from freshwater to salt water. As with the sea-level canal we do not believe that the Statement adequately considers these issues but we also believe that the Impact Statement is not intended to substitute for or preempt any subsequent need for a full NEPA investigation of the environmental impacts at such time as such construction might be considered. Again such assurances should be provided in the final Statement.

(3) "Straightening" Proposal

There remains a third possibility which to our knowledge is not referred to specifically in the Treaty but which, nevertheless, should have been raised in the Statement. This option involves proposals to "straighten" the existing Canal. Should these proposals be followed, it could result in the destruction of one or more of the three peninsulas opposite Barro Colorado Island. If this could be undertaken once the Treaty comes into effect without full NEPA review, it casts serious doubt on the statement that control of these peninsulas by the Canal Commission "should continue to afford protection..." (p. 29).

Once again so long as the submitted Impact Statement is not considered to have fulfilled the NEPA requirements in the event "straightening" the Canal becomes an actual proposal, we see no reason to include such possible options among the impacts arising from the Treaty.

We must respectfully disagree with some of our colleagues that inclusion in the Treaty of the sea-level canal or third lock option will be interpreted in Panama as a commitment to undertake construction either the sea-level canal or third-lock option. I found officials in Panama fully aware of the speculative nature of the proposals as well as the possibility that adverse environmental consequences (which would most impact on Panama's own environment, fisheries, etc.) might foreclose such construction by the U.S.

The Treaty has a number of unusual, perhaps unprecedented, aspects. NEPA would seem to apply to these options; however, if it does not or may not the potential impacts of the Treaty are substantial. An exchange of notes or clear assurances during the ratification process, which specify that full NEPA review would precede any major actions on the sea-level canal, third lock or straightening option should resolve this issue.

C. Miscellaneous

There are several points in the Statement with which we might take issue or at least would desire further clarification.

(1) There are several general references to provisions of the Treaty such as environmental laws "...which will apply in accordance with the provisions of the proposed treaty" (p. 15). The text of the Treaty has not been made available as of these comments, therefore we reserve judgment on any such specific, but at this time unknown, terms in the Treaty.

(2) Similarly the "Joint Environmental Commission," which we believe is a most important and laudatory mechanism to help at least raise environmental questions during the life of the treaty, nevertheless remains an unknown quantity. How the Commission will be selected, what authority and financial resources will be available to it, whether its recommendations will be (or should be) public and other relevant issues have yet to be spelled out. Again we can only reserve final judgment.

(3) We believe that the exclusion of the three peninsulas opposite Barro Colorado Island from the separate international agreements is a significant and potentially negative environmental impact of the Treaty. Far greater protection of these areas would have been provided by their inclusion in those agreements particularly in light of the already existing proposals to "straighten" the Canal referred to above.

(4) The statement that "Hunting restrictions have also helped preserve a wide variety of birds and animals in the zone" (p. 4) must be called into question. We believe such protection to be an incidental and not consciously

Mr. William H. Mansfield III  
September 7, 1977  
Page 7

intended benefit from restricted public access to the Zone in order to meet other unrelated objectives. The Canal Zone hunting laws (st Tab E) include no reference to endangered species, seasons or bag limits. As this wildlife will remain under the stewardship of the U.S. at least until the Treaty comes into effect, these laws are in serious need of extensive revision. We understand such a revision is underway, as it has been for some time. Should the Treaty lead to new hunting laws in the Zone, properly enforced, during the remaining period of U.S. stewardship, it would be an indirect environmental benefit arising from the Treaty.

(5) One of the most environmentally important areas, as pointed out in the Statement, is the pipeline road from Gamboa to Gstun Lake. Apparently this area may be leased to the U.S. Army's Tropic Test Center (p. 2, p. 30). From discussions in Panama, we have reached the conclusion that past practices of the Center have been compatible with preservation of the forest and wildlife of this area. Nevertheless, we would hope that any future lease to the Center would provide for review with veto power (by the Joint Environmental Commission or otherwise) to assure that this would continue to be the case. We would also hope that should a lease be arranged it in no way would jeopardize, preclude or in any way limit the possibility of the area being designated as a park by Panama now or in the future (p. 30).

57

We hope the Joint Environmental Commission will also maintain an overview of protection in the Fort Sherman - Achote Road joint coordination area (p.27); however, we agree that the joint U.S.-Panamanian controlling of this important natural area will enhance protection.

#### IV. Conclusion

While uncertainties exist, we share the conclusion of the Impact Statement that "No action" or "Postponement" are unacceptable alternatives. We feel the Statement reasonably concludes that these alternatives would not involve maintenance of the status quo but rather would lead to increased confrontation which would be detrimental, and very possibly devastating, to the forest and wildlife of the present Zone.

Certainly we would applaud a Treaty with strong environmental provisions including (1) commitments on the part of Panama to protect the forests and (2) similar commitments from the U.S. to specifically support such efforts. However, if the proposed Watershed Management Project is approved as recommended in these comments, it would be close to meeting the latter objective. Commitments by Panama in the Treaty itself seem inappropriate and politically unfeasible. It is my personal conclusion, based upon a recent trip to Panama, that they fully recognize that protection of these forest areas are in their own interest. Provision of assistance to help mitigate the difficult economic choices such protection could involve will also increase the effectiveness of such a decision. In any event, such a requirement would be inconsistent with the objectives of a new relationship between Panama and the U.S. which underlies the Treaty. The decision to preserve these unique Panamanian forests must ultimately rest with Panama.

Mr. William H. Mansfield III  
September 7, 1977  
Page 8

We therefore conclude that Alternative C "Treaty Implementation, with Environmental Provisions" does represent the most environmentally sound course of action.


We would like to make two further observations which have played a role in our reaching the above conclusion.

Without in any way diminishing the importance of the environmental issues raised directly by the Treaty, it is our hope that concern for protection of these areas will also lead to increased support for conservation projects outside the Zone itself. The need to protect the pipeline road and Fort Sherman - Achote Road areas should result in cooperation with Panamanian individuals and institutions already seeking protection of Volcan Baru, Altos de Campana, the Darien, areas behind Sierra Colorado, Portobelo and a number of other existing proposals. If indeed this results from the process begun by the Treaty, the positive environmental impact will far surpass those referred in the Impact Statement.

Secondly, the Treaty provides a highly visible opportunity to stress the importance of environmental issues elsewhere in the hemisphere. The hemispheric attention focused on the Treaty is certainly not the result of environmental interest; however, the Treaty places these questions into perspective as an integral aspect of development, economic and political decision-making. By making sound environmental management a part of the treaty goals, the process has certainly strengthened the case for a growing number of individuals and institutions who seek to stress these concerns to their own governments elsewhere in Latin America. This admittedly unintended side effect of the Treaty has the potential for initiating a new era of environmental cooperation with and among the nations of Latin America.

The Nature Conservancy would be pleased to provide any additional information requested by the Department of State concerning the environmental impacts of the new Panama Canal Treaty. If the Department of State declines to accept the recommendations made above or decides not to remedy what are characterized in this submission as defects, we request that the Department of State fully explain its reasons for such action.

Respectfully submitted,

  
R. Michael Wright  
Director and General Counsel,  
International Program  
The Nature Conservancy

RMW:cvj



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September 28, 1977

Mr. William H. Mansfield III  
September 28, 1977  
Page Two

Mr. William H. Mansfield III  
Office of Environmental Affairs, Room 7820  
Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

The brief of World Wildlife Fund-United States is to maintain biological diversity particularly in tropical America and from that vantage point is particularly suited to submit comment on the draft environmental impact statement for the new Panama Canal treaty.

A sea level (and thus salt water) canal will have major detrimental environmental effects, unless a major biological barrier (such as heating the central portion would provide) would be present. One only has to look to the effect of the Suez Canal and consequent marine extinctions, or to a terrestrial equivalent such as the joining of North and South America by a land bridge in the Pliocene (the effects of which were at least obvious on larger mammals) to know that massive extinctions would result from the mixing of Caribbean and Pacific fauna. Our inability to predict which species would be driven extinct or adversely affected in no way represents a lack of "firm evidence" of deleterious environmental consequences. The contention is nonsensical and irresponsible. A sea level canal would qualify as one of the greater ecological disasters man has perpetrated.

The third-lock option has potential environmental consequences of similar nature but lesser degree, depending on the extent to which Gatun Lake is converted to salt water.

That the treaty calls for encouragement of Panamanian initiative in protecting forests presently intact, and in reforestation elsewhere to protect the canal watershed, is encouraging. But the possibility of AID funds in support of such initiatives must not be a suggestion of hollow intent, designed to assuage environmentalists' concerns but never to be honored. A real commitment by AID needs to be made.

Respectfully submitted,

Thomas E. Lovejoy, Ph.D.  
Program Director

TEL:jb



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October 13, 1977

Mr. William H. Mansfield III  
Office of Environmental Affairs  
Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

I appreciate the opportunity provided by the extension of the period for comment on the draft environmental impact statement for the new Panama Canal Treaty, because it has come to my attention that one very important environmental issue is not addressed at all in that statement. Its exclusion was perhaps justified in that it might take place regardless of whether a new treaty is approved, but as a very serious environmental matter, it must not be ignored.

I refer to the possibility of a water deficit in the use of the present canal being met by pumping salt water into Lake Gatún. This would affect the limnology of the Lake, which admittedly is artificial to begin with, but this is not the matter for greatest concern. Rather, the concern relates to increased likelihood of passage of marine organisms from one ocean to another. While it is not likely to have as dramatic or drastic effects as a sea level canal (see my letter of 28 September), it could have measurable effects and deserves serious in-depth investigation. In that many marine organisms have planktonic and mobile stages of various sorts I would suspect there to be an appreciable likelihood of inter-ocean introductions, which should rule out a saltwater solution to the water deficit of the current canal operation. Rather, the solution should probably lie in improving the existing watershed, and reforestation programs, or even finding another freshwater source.

60

Sincerely yours,

Thomas E. Lovejoy, Ph.D.  
Program Director

TEL:jb

Box 163  
Balboa Heights, Canal Zone  
September 26, 1977

Mr. William Mansfield III  
Office of Environmental Affairs  
Room 7820, Department of State  
Washington, D.C. 20520

Dear Mr. Mansfield:

A review has been made, although hurriedly, of the draft Environmental Impact Statement for the new Panama Canal Treaty. It is exceedingly difficult to review such a document within the time frame allowed, particularly when no copy was made available to those individuals who will be most directly affected by the misguided efforts of the State Department. I refer specifically to the Canal Zone resident. Not only were comments not solicited from this group of people, but a request was made to reduce the period for comment from the usual 45 days to 30 days. An action of this magnitude which has such far-reaching effects should not be subject to a political time schedule. The political time schedule should be adjusted to allow for the maximum review time.

The entire draft statement appears to have been prepared after-the-fact and is an attempt to justify the State Department's negotiation of this treaty. The following are comments concerning said statement.

1. Summary page 1, paragraph 2: Limits effects to Panama, Canal Zone and the United States. This is an understatement inasmuch as this action will at the least have an impact economically on all countries utilizing the Canal. Some come will be affected more than others. This subject must be thoroughly and accurately addressed.

2. Summary page 1, paragraph 3: This summary paragraph is grossly understated. The implication is that the only impact will be felt by those individuals, both U.S. and non-U.S., who will lose their jobs. In reality, those who do not lose jobs will be severely affected socially, economically and politically. The statement fails to adequately address this subject.

3. Summary page 1, paragraph 5: Requests a reduction in the review period from 45 days to 30 days for political scheduling. The period should not be shortened but in fact should be increased owing to the ramifications and far-reaching effects of this treaty.

4. Summary page iii, paragraph 5: No comments were solicited from those parties most directly affected by the new treaty, the Canal Zone residents, both U.S. and non-U.S.

5. Page 1, paragraphs I.A.: Statements appearing on this page are biased and opinionated. The impact statement requires factual data and not misleading statements. The reference to the Canal Zone as "an area of Panamanian territory" has already been settled by U.S. courts. Should the State Department think otherwise, they should take it back to the courts and have the ruling overturned. Nowhere, under our present Constitutional system, do they have the authority to make this determination on their own.

Likewise, the State Department persists on interjecting those killed in the 1964 riots as martyrs for a cause. If this statement is permitted to remain, then it must be insisted that the full report of the U.N. Commission which investigated the 1964 deaths must be included. The majority of the deaths occurred as a result of "looting" at the hands of Panamanians.

6. Page 3, final paragraph: Indicates operational aspects will not differ. It is not known what is meant by this statement; however, it is difficult to understand how operations will not change since docks, railroad, etc., will all be turned over to Panama. This has to be clarified in terms of operations, economics and social factors.

7. Page 4, paragraph c.: Ignores water pollution because of the influx of squatters on land previously not open to them. Little regard is given to this aspect of the environment by squatters.

8. Pages 6 and 7, last and first paragraph: This appears to be opinion which is purposely related to this area without substantiation. All one needs to do is read the accounts pertaining to the construction of the Panama Railroad in the mid-1800's to get an entirely different impression of conditions which existed along the Canal route. The fact of the matter is that most of the present Canal Zone is rich in fauna and flora and will be subject to the whim of the Panamanian Government once it is turned over to them.

9. Page 11, paragraph 2: The Public Health functions performed by the Canal Zone Government Health Bureau are numerous and extensive. To the efficient performance of these functions can be credited the eradication of dreaded tropical illnesses such as typhoid fever, dysentery, yellow fever and especially malaria. In view of the fact that the Government of Panama places less importance on activities of a preventative nature, particularly if the activities are not without some cost, guarantees should be made that these essential public health activities continue.

10. Page 13, last paragraph: Paints a rather rosy picture of services provided. It is true that the stores sell many items; however, there are many

items not sold which are considered everyday items in the U.S. In addition many items are not available on a day-to-day basis and many are only available in the Republic when they have them. It is not uncommon to wait two or three months to obtain a water pump or muffler for an automobile. There are many such items in this category which are considered general stock items in the U.S.

11. Page 15, paragraph II. B: The statement should adequately address the terminology in the Panamanian Law which refers to "exploit rationally." The attitude of the Panamanian Government toward environmental protection is now and has been totally lacking either because of economics or lack of will. A mere tour of the Panamanian countryside provides ample evidence to demonstrate the prevailing attitude.

12. Page 16, paragraph A: Should address the authority of each Government in all areas concerned. What authority will the U.S. have over lands turned over to Panama? What authority will the U.S. Government have in forcing Panamanian compliance, what will the economic impact be and who will pay for it?

13. Page 17, 2nd and 3rd paragraphs: What are the enforcing provisions, who exercises authority and who pays for enforcement of environmental protection measures? How does U.S. exercise authority over lands turned over to Panama and what guarantees are there that Panama will carry out its portion? Environmental regulations or considerations have never been a priority with the Panamanian Government and there is no reason to believe that this treaty will change the situation. Once again a tour of the countryside will provide ample evidence of this statement.

14. Page 18, top of page: States "problems are recognized by the U.S. and Panamanian officials and plans are being made to cope with them." What are the plans, how much will they cost and who will pay for them? What is the extent of the area covered? Once again there is no evidence of enthusiasm on the part of Panama for this. Investigation would reveal this fact.

15. Page 18, paragraph 2: Totally ignores the social impact that actions of this nature have on the community. What is the total impact on community life?

16. Pages 18 and 19, paragraph 3: This section refers to the loss of jobs and continuation of employment, yet it mentions absolutely nothing about the social aspect of passing from a democratic environment to that of a dictatorship. Once again the entire social aspect of the environment has been ignored or glossed over. This has got to be presented in detail in a true light to properly evaluate the impact. There are constitutional, social and economic considerations to be addressed. No mention is made of hiring under a quota system nor have the problems of employee relocation been addressed. This subject is treated as though it was an everyday routine occurrence.



17. Page 20, second paragraph: Mention is made of relocation allowances. What are these allowances and why are they only promises? How much will the allowances be, who will pay for them, in short, what are the social, political and economic ramifications?

18. Page 21, second paragraph: What are the social, economic, political and constitutional impacts of these treaty provisions and plans which are to be implemented?

19. Page 22, Paragraph 5: States health and sanitation concerns have been recognized. How has the concern been recognized and what is being done? What is the social and economic impact?

20. Page 23: What is the impact on the U.S. from all viewpoints by not being able to negotiate for a sea-level canal elsewhere?

21. Page 25, paragraph 7, 1st: The true economic picture is not given. No mention is made of the fact that payments will be adjusted by an inflationary factor nor is there any mention of the monies to be paid for so-called services they are supposed to provide for remaining Commission housing areas. The whole economic impact, including loans, needs to be addressed. The amount of the toll increases should be addressed in view of the substantial increase in the annuity being paid to Panama. How much will this toll increase be?

22. Page 29, paragraph 1: The entire Canal Zone should be of primary consideration. An investigation into present Panamanian practice will show the low level of concern. The Panamanians' park system establishes areas of forest preserve in several areas of Panama, such as Volcan de Chiriqui, Cerro Campana, etc. Unfortunately the laws establishing these areas as reserves are not enforced and continued progressive destruction of forests in these areas occurs. RENARE has developed plans for national parks which are intelligent and well thought out; however, there seems to be no Panamanian Government interest in implementing and enforcing these plans.

Because of the time limitation imposed on review and the fact that we were not able to obtain a copy of the statement in a timely manner, a complete and detailed review could not be accomplished. In view of the foregoing comments, it is almost a certainty that many more questions have gone unanswered.

In conclusion, the new treaty will certainly have a significant impact on Company/Government operations. The draft leads one to believe that it does not have an impact on the assumption that potential impacts will not significantly affect, directly or indirectly, the human and natural environment of the Canal Zone area, or at least that potential adverse impacts can or will be avoided or mitigated.

The draft treaty omits any discussion of the potential impact on U.S. national or international defense and any reference to economic impact on shipping and other nations of the world. The draft treaty is markedly deficient in dealing with the impact on existing U.S. citizen communities in the Canal Zone. It is even more deficient on this same subject concerning the non-U.S. community. There is no description of the existing human community environment or of the probable impact of the new treaty on the human community (socio-economic conditions). In this regard we believe that an adequate and detailed discussion of the following items be included in the final E.I.S.:

1. The existing human/community environment (socio-economic conditions) in the Canal Zone.
2. Probable changes in the human/community environment.
3. Probable impacts (beneficial and adverse) on the human/community environment resulting from the new treaty. Impacts should include as a minimum: life styles and activities; psychological needs; community needs; personal safety and basic freedoms.
4. Adverse impacts on the human/community environment which cannot be avoided or substantially mitigated.
5. How the new treaty and its implementation measures attempts to mitigate certain potential adverse impacts on the human/community environment, including an assessment of the probable effectiveness of these measures.

All existing U.S. laws which are codified in the Code of Federal Regulations will be disestablished upon ratification of the treaty with no protective restraints. The entire question of enforcement will depend on the good faith of the Panamanian Government. There is ample evidence in existence that environmental considerations receive low priority. What legal recourse does the U.S. have to enforce Panamanian environmental laws?

The map of the Canal Zone depicting forest areas is very misleading inasmuch as there is much more forested area than is shown, particularly in those areas north of Summit. Finally, it should be emphasized that public hearings on the impact statement should be held in the Canal Zone because this is the primary area affected.

Sincerely,

*Harold B. Green, Jr.*  
Harold B. Green, Jr.  
President, Gamboa Civic Council

*Patricia T. Fulton*  
Mrs. Patricia T. Fulton  
President, Pacifico Civico Council

*Charlotte B. Kennedy*  
Mrs. Charlotte Kennedy  
President, Cristobal-Margarita-Brasos  
Heights Civico Council

*Jeri Steeles*  
Mrs. Jeri Steeles  
President, Gatun Civico Council

*Francine Field*  
Francine Field  
President, Coco Solo, France Field  
Civico Council

\*\* Please furnish copy of final EIS.



**Paul J. Baicich**  
7607 Latham Avenue  
Oxon Hill, Md. 20022

Oct 11, 1977

Mr. William H. Mansfield III  
Office of Environmental Affairs, Room 7820  
Department of State  
Washington D.C. 20520

Re: Draft Environmental Impact Statement for the  
New Panama Canal Treaty

Dear Sir:

Both as a student of Latin American affairs and an amateur naturalist who has visited Panama, I would like to make some short comments on the Draft Environmental Impact Statement for the New Panama Canal Treaty.

The New Panama Canal Treaty is important not only to diplomats concerned with modernizing our relationship with Panama and bettering our relations with our Latin American neighbors, but also to conservationists -- both amateur and professional -- who are concerned with the rapid disappearance of lowland neotropical forests and their wildlife in the Americas.

While the Draft Environmental Impact Statement at the outset (p. 4) correctly points out that the forests in the Canal Zone retain probably the most "extensive readily accessible lowland forest area in Middle America," and that the "preservation of the forests and their wildlife is important..." there is woefully little in the report which illustrates the urgency of these very concerns.

The crux of the problem is clearly stated in the conclusion (p. 42): "A distinction must be drawn between environmental effects arising directly from the implementation of the proposed treaty and those effects which are anticipated in some quarters as a result of the proposed change in control over the present Canal Zone." Unfortunately, this kind of posture is the very thing which has a number of conservationists and environmentalists concerned over the New Panama Canal Treaty. In any other circumstances, if the Federal Government were selling, leasing, or otherwise relinquishing property under its authority to a private concern or local governmental authority, one would expect that the question of environmental impact would focus on the intentions that the second party would have vis-a-vis that property. This is not the case in the Draft Environmental Impact Statement for the New Panama Canal Treaty. Here, while the study purports to be concerned with the future of the valuable wildlife and habitat in the Canal Zone, it actually washes its hands of the matter quite deftly by stating that "there will be large areas (about 2/3rds of the Canal Zone area) in which environmental protection will depend on Panamanian legislation and enforcement." (p. 30) Although I believe that the 2/3rds figure is too small an estimate, it is not my intention here to refute that figure, but to emphasize that a crucial point has been made in this statement -- i.e. not the U.S, but the Panamanian government will have the responsibility for habitat preservation. This essentially reduces the "Joint Environmental Commission" to

COMMENTS ON THE  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
BY  
PRIVATE INDIVIDUALS

strictly an advisory group at best, with no enforcement powers and constrained by Panama's inadequate legislation and poor enforcement record.

There is no real effort in the report to seriously inquire into the Panamanian government's intentions for the Canal Zone. When some general intentions in the environmental area are cited, no assessment is made of Panamanian ability to carry them out. The following are some examples in this area:

-- p.17-17 "On balance, there are grounds for environmental concern. There will probably be some deforestation in Canal Zone areas turned back to Panama. There has been some illegal cutting in the Zone under its present American administration. These problems are recognized by U.S. and Panamanian officials and plans are being made to cope with them." While pointing out an important problem -- a problem which concerns many environmentalists -- the report does not state exactly what is being done to cope with the probability to deforestation. A good environmental record of this sort on the part of the Panamanian government would allay fears that the natural habitat of much of the Zone would be despoiled. The study does not illustrate what this record is or what these "plans" are.

In one of the appendices to the study, the "AID Watershed Management Project Identification Document," we do find out that there is "little or no legislation designed to avoid indiscriminate resource destruction or to promote their rehabilitation. What laws there are cannot be expected to be applied for lack of enforcement mechanisms." This, to say the least, is not encouraging.

--p.18 It is stated that success in this area depends in part "on the Panamanian side from the support and funding RENARE gets from political levels of the Panamanian Government." This is a crucial question, since later in the report RENARE (the Directorate General for Renewable Natural Resources in the Agricultural Ministry) is cited as the Panamanian agency responsible for future parks and preserves projected in parts of the Canal Zone. In the study's treatment of RENARE and from evidence gathered elsewhere it seems evident that the agency has at this point neither the finances, nor, more importantly, the political leverage to adequately protect valuable habitat either inside of or outside of the Zone. What the likelihood of RENARE's increase in influence within the government is, the report does not state. The most cursory investigation into Panama's park system would raise doubts as to RENARE's abilities.

To date, despite a variety of appropriate areas, Panama has established only one National Park, a small tract of cloud forest on Cerro Campana. Unfortunately precious little has been done, either by RENARE or any other Panamanian agency to discourage squatters and deforestation of the area. The fact that in all of Panama there can be found only six graduate foresters (of whom only two work in the public sector) and only seven formally trained middle-level forest technicians, is hardly reassuring. Neither is the fact that the Faculty of Agronomy at the University of Panama lack a Department of Forestry.

-- p. 29 "Madden Forest Reserve will be incorporated into the Panamanian park system, according to RENARE officials." Again, the intentions of RENARE officials are one thing, exact plans, spelled out and with strong political backing are quite something else. In extreme western Panama there is an area of much biological interest around Volcan Baru, an extinct volcano that is Panama's highest mountain. For years this area of fine highland forest has been discussed as a National Park to no avail. What remains of the forest is rapidly being destroyed by squatters. The point here is that a verbal interest in establishing a National Park is insufficient to protect the area and no substitute for concrete plans and concerted government action.

-- p 29-30 The report states that the U.S. Army Tropic Test Center which has held three tracts along the wildlife-rich "pipeline road," would "like to lease back some or all of these tracts from the Panamanian Government at a reasonable rental."

The report states that the Test Center is having difficulty establishing P - 43

what a "reasonable rental" is. The report neglects to mention what Panamanian agency the Test Center intends to lease from. Even such a rental arrangement would in no way guarantee the environmental integrity of the "pipeline road" area. When squatters who had invaded the area were evicted by Canal Zone police in May, 1977, the Panamanian press condemned the action. Such evictions would be far less likely under a rental arrangement. Far more is needed for the "pipeline road" than a lease from the Panamanian Government.

The report continues to state that RENARE "would like to see this area preserved and would favor the Test Center lease arrangement or designation of the tract as a park." Does RENARE believe that a rental arrangement for the "pipeline road" is sufficient? Is rental environmentally equivalent to designation of the area as a park? What are their exact plans? Again, with whom are they working this out? Unfortunately, none of these questions are answered about a rich neotropical lowland area whose wildlife includes 216 species of birds which do not occur outside of the New World tropics and 10 animals which are classified as endangered species. The report does go on to frankly state that, "A third alternative, of course, if both of these arrangements should fail, would be for the area to be deforested through slash and burn practices by squatters or commercial timbering." The report does not really face up to what can be done to avoid this alternative.

-- p.31 When describing RENARE and IDAAN (the Institute for Water and Sewage) the report states that "These agencies have plans for the creation of forest reserves and parks, for reforestation, and for resettling squatters moved out of the Canal watershed areas." Some illustration of these plans, with information on sites for "forest reserves and parks," which are of vital concern to those interested in the ecology of the Canal Zone area would have been more than helpful.

--p. 32-3 The same can be said for the statement concerning the three Panamanian development plans that have publically surfaced. However, we are left with the nebulous assurance that, "Panamanian development plans affecting the Zone appear to have taken account of environmental concerns and to have sought to minimize adverse impacts."

-- p. 33 The report states that "Panamanian officials are not aware of plans for any activities which would attract large numbers of people to Cambo and they discount reports of potential crowding in the area." (my emphasis) Exactly which "Panamanian officials" are these? If they "are not aware" of such plans for development in the important Cambo area (near the beginning of the "pipeline road") does this mean that "other" Panamanian officials might be?

These and other problems in the Draft Environmental Impact Statement for the New Panama Canal Treaty leave me believing that most of the biologically important habitat in the Canal Zone area remains in jeopardy. There ought to be some addendum to the Treaty guaranteeing the ecological preservation of important areas in the Zone area. Although a special arrangement seems to be forming over the Barro Colorado Island where the Smithsonian has its Tropical Research Institute, there must be ways to guarantee other areas in perpetuity. Such areas might include: the "pipeline road" starting near Cambo and the surrounding areas extending north-west on the eastern side of Gatun Lake, the Madden Forest, Fort San Lorenzo and the wooded areas between it and the modern Fort Sherman, the Northwestern slopes of Gatun Lake to the Caribbean (including that portion of the Achote Road within the Canal Zone), Southwestern Canal Zone between the Interamerican Highway and the southern edge of Gatun Lake, and the Farfan area.

Unfortunately, the environmental concerns over the Canal Zone area have trailed far behind the State Department's strictly diplomatic moves, as the

Draft Environmental Impact Statement for the New Panama Canal Treaty attests. Indeed, the State Department's own procedures have stated that in the case of international agreements, draft statements will, where possible, normally be prepared, circulated for comment and forwarded to the CEQ prior to the commencement of negotiations intended to produce a final agreement." Had the State Department followed its own guidelines, such a statement would have been drawn up months, perhaps years, ago. Furthermore, a "Joint Environmental Commission" staffed with experts and empowered with the right to plan for parks and preserves in the Canal Zone area should have already begun careful studies of the environmental concerns I have outlined above. A "Joint Environmental Commission" as now envisioned with no real power has not yet, to my knowledge, been established. This may be an example of "too little, too late."

I would like to make one final point. While the statement cites the U.S. Endangered Species Act (p.5) there appear to be no moves that the State Department has made to insure that its actions do not jeopardize the continued existence of any of the nineteen species of birds, mammals and reptiles on the government's Endangered Species List that are found in the Canal Zone. A well done draft statement would have addressed this important question.

I cannot exaggerate the importance of sound environmental policy vis-a-vis the New Panama Canal Treaty. Unfortunately, the Draft Environmental Impact Statement for the New Panama Canal Treaty does little in this area. As the AID appendix to the statement makes clear, already the entire Pacific watershed of central and western Panama has lost "virtually all forest and scrub vegetation cover... exposing a wide band of land, approximately 12,000 square kilometers or 16% of the total land area, to serious degradation." If this fate is not to befall the forests, and thus the wildlife, of the Canal Zone, the U.S. will have to take definite steps to guarantee preservation of valuable habitat.

Respectfully submitted,

*Paul J. Baicich*

Paul J. Baicich

cc: Mr. Robert Nichols  
Interior Committee, U.S. Senate

September 26 1977

Mr William H Mansfield III  
Office of Environmental Affairs  
Department of State  
Room 7822  
Washington D C 20520

Dear Sir,

My comments and questions on the draft Environmental Impact Statement concerning the Proposed Panama Canal Treaty are as follows:

- 1 Was an announcement to the effect that the draft EIS was available to the public placed in the local English language newspaper, the Panama Canal Spillway (published by the Panama Canal Company) and the SCN news (published weekly by the Armed Forces)? It was only by accident that I found out that the draft EIS was being circulated among officials of the Company/Government, and was able to borrow a copy for one day. Why the secrecy?
- 2 Was a public hearing held in the Canal Zone?
- 3 If the draft EIS was not made available to the public in the Canal Zone and a public hearing held then is the intent of National Environmental Protection Act being complied with?
- 4 An alternative to the proposed treaty is to give up control of part of the Canal Zone by legislation in the House of Representatives and either sell or retain ownership of the buildings. Why wasn't this alternative considered?
- 5 What effect will the proposed treaty have on traffic patterns in the Canal Zone? To what extent will air pollution and noise pollution increase?
- 6 The draft EIS states that 600 U S positions and 2800 Non-U S positions will be abolished immediately. After negotiating for more than 10 years, the State department should be able to be more specific.. How many policemen, firemen, electricians, machinists, professional employees, etc. will lose their jobs immediately? In five years? Ten years? Twenty years?
- 7 It is stated that the problems of transferring employees to positions in other agencies appear manageable. No information is provided indicating to which agencies and where employees will be transferred.. How many positions in each of the various disciplines have been available in other agencies during each of the last 5 years? How many vacancies is each agency predicting in each of the various disciplines in the next 5 years?

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- 8 The EIS provides figures on the number of employees eligible to retire. What percentage of these employees will elect to remain working for a year or two rather than to retire immediately? What percentage of those eligible to retire have school-age dependents? These employees will probably elect not to retire immediately.
- 9 Data on the present Panama Canal Company should be provided showing present income and the source, and expenditure. Data should also be generated to show that it is possible for the Panama Canal Commission to have a balanced budget. What guarantees are there that Power and Telephone rates to employees will not be arbitrarily increased in order to balance the budget?
- 10 What will be the economic impact on an employee who remains longer than 5 years and loses the "guarantees" provided by the Treaty?
- 11 What will be the psychological impact upon U S citizens when taken from U S police and laws and placed under the rule of a military dictatorship?
- 12 Will the treaty strengthen the hold of the military dictatorship on Panama?
- 13 The treaty provides for closing down commercial type activities in the Panama Canal Zone or turning them over to firms in Panama. Among the activities to be shut down or turned over is the Ice Cream Plant in Mt Hope, which also produces reconstituted milk. Several times in the past 5 years this has been our only source of milk because milk produced in Panama was banned by the Canal Zone Health officials due to a high bacteria count. What guarantee is there that an adequate milk supply for our children will be available? While Panama officials were assuring the State Dept that Panama was able to supply the required milk to the Canal Zone at the prices the Canal Zone Commissary charged, the U S D A was reporting in their publication "Foreign Crops and Markets" that Panama farmers were protesting they could not. Nevertheless the Panama Canal Company phased out its dairy operation. Only a short time later there was no milk available in the Canal Zone. Similar questions concerning other activities to be phased out should be answered.
- 14 What effect will the treaty have on the crime rate in the Canal Zone? Will patrols by the Panama National Guard occur with the same frequency as now conducted by the Canal Zone Police?
- 15 What is the present worth of the buildings and improvements on U S defense sites in the Canal Zone? Were these constructed with defense department appropriations? Will the treaty preclude further capital expenditures in the Canal Zone by the Defense Department? If not, how much will be spent for improvements to facilities which will be given away in the future?

- 16 Maps recently released show that no fewer than 6 ball parks will be included in land that will be under the jurisdiction of the proposed port authority. Where will our Little Leaguers and teenagers play ball? How will the treaty affect this and other forms of outdoor recreation?
- 17 Testimony by our negotiators before congressional committees imply that some agreements with Panama have not yet been made public. What will be the adverse effects of these agreements?

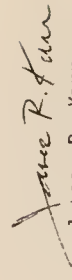


Robert S. Flumach  
0918 Amador Road  
Balboa, Canal Zone

Without the forest then, there is reason to believe that costs of dredging will multiply rapidly and Canal operation may be hindered during dry season. I urge that special provisions be made to insure that watershed protection be a fundamental objective for continued Canal operations, regardless of future treaty arrangements.

I have other comments but will hold them until I have studied a copy of the Draft EIS. I look forward to receiving a copy of that document.

Sincerely,

  
James. R. Karr  
Associate Professor

Mr. William H. Mansfield, III  
Office of Environmental Affairs  
Department of State  
Room 7820  
Washington, D.C. 20520

Dear Mr. Mansfield:

I have just seen an announcement of the extension for commenting on the Draft Environmental Impact Statement for the new Panama Canal Treaty. Unfortunately, I have not yet been able to obtain a copy of the Draft Statement. Please send me a copy and put me on your mailing list to receive the final statement when it is available.

In order to meet your 13 October deadline I will comment on one point of concern to me with respect to the new canal treaties. Mostly by accident, a major share of the present Canal Zone has been preserved in a relatively natural state. As a result one of the most, if not the most, accessible areas of neotropical forest is located in the Zone. These forests have tremendous value as a scientific resource and also as a resource which could be of significant economic value for tourism. In the decade since I first began working in Panama and the Canal Zone, I have met many scientists, birdwatchers, etc. who have been attracted to the Zone by the valuable forest and its' associated wildlife.

This forest has another value, however, which is not generally appreciated. The forest has preserved the watershed of Gatun Lake. This preservation has held the soil on the hillsides and thereby reduced siltation rates into Gatun Lake. Potential problems for Canal maintenance and operation associated with high siltation rates are obvious. A clean example of the potential problem can be seen in the situation at Madden Lake where the surrounding hillsides have been denuded of vegetation and siltation in Madden Lake is proceeding rapidly in a number of areas.

In addition to holding silt the forest vegetation of the Canal Zone provides a valuable "service" which enables more efficient operation during the prolonged dry season. This happens because the forest acts as a sponge to hold water during the rainy season. This reduces the magnitude of flood peaks during the wet season, but more importantly releases water slowly to the Canal system well into the dry season.

JRK:jb

October 10, 1977

COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT\*  
FOR THE NEW  
PANAMA CANAL TREATY

I respectfully submit my personal critique on the Draft Environmental Impact Statement (hereafter referred to as the Draft EIS) for the new Panama Canal treaty.

I wish to protest the date set by the State Department, September 28, 1977, as the last day for comment on the draft. The reduction of the period for comment on the draft from the usual 45 days to 30 days severely prejudices those who plan to comment on the Draft EIS by denying them sufficient time to critically review it and to assemble facts. This has been particularly difficult since, to fully understand the draft EIS, it is necessary to refer to the text of the proposed Canal treaties and the crucial Status of Forces agreement.

My environmentalist and conservationist friends and colleagues have been denied sufficient time to comment on the draft.

A review of the draft EIS indicates that no provisions have been made for the conservation of the most accessible lowland, moist forest of mid-America. In view of this, it is my belief that the draft EIS (thank God it is draft only) should be totally rewritten. In so doing, there are four basic questions to be addressed, all of which were overlooked in the draft EIS.

1. To whom are the forests located in the Canal Zone being ceded?
2. What kind of forests are being ceded?
3. What are the possible consequences of ceding these forests?
4. What are the remedies for adverse consequences which may result?

My analysis follows.

Question No. 1: To whom are the forests located in the Canal Zone being ceded?

The forests are being ceded to the Republic of Panama. The Republic of Panama does not have the best conservation record among the Latin American countries, and it may have the worst. Latin America as a whole lags considerably behind the rest of the world in setting aside suitable areas as national parks and biological reserves though some countries, in spite of budgetary restrictions, are making great progress. Costa Rica is one such example.

Panama is trailing her sister Republics and to date only one national park has been established in a small cloud forest on Cerro Campana thirty miles west of Panama City. Unfortunately, even this area is inadequately

protected and has been invaded by squatters practicing slash and burn agriculture.

The Resplendent Quetzal in Volcan Baru, a long extinct volcano that reaches above timberline and is Panama's highest mountain at 11,410 feet, (and which has often been cited in zoological literature) is unprotected, and the forest lands there are also being rapidly decimated by squatters. It appears that the Resplendent Quetzal (perhaps the most beautiful bird in the New World) will soon be extirpated along with numerous other species endemic to the highlands.

Darien highlands, the seabird colonies of the Gulf of Panama, and the Veraguas (Santa Fe) range of mountains also require protection. Throughout Panama, a number of species of birds have been overshot, yet the hunting laws remain virtually unenforced. Because of this general lack of protection, some bird species have decreased drastically. Still no mention is made in the draft EIS of the Republic of Panama's poor conservation record.

Question No. 2: What kind of forests are being ceded?

In the draft EIS, the forests being ceded without a provision for protection represent the biome with by far the greatest abundance and diversity of species. They are also the most extensive and readily accessible lowland tropical forests in Middle America. Forests such as these harbor the fastest disappearing biomes on earth. Within in the green forested area is found a great variety of birds and large mammals, making it a naturalist's paradise. There is no reference to this in the draft EIS.

The forests along Pipeline Road and in the Achiotte area are of great biological significance. They are located on the isthmus which joins North and South America at a point where plants and animal life have met and mingled. Bird life of both continents hybridize in these forests with complete interbreeding. Located, as they are, on the narrowest part of the isthmus, they have become natural laboratories. They are found along vehicular roads making it possible to quite easily study plants and animals.

Many tourists (nature tourists and bird watchers on nature tours), scientists, students, and amateur naturalists visit here. Many have been brought here by the Smithsonian Tropical Research Institute to unravel the mysteries of the tropical forests while they still exist.

In addition to their function as wildlife sanctuaries, the forests are of the greatest importance to the watershed. The prevent floods and erosion, prevent drought conditions during dry season, and increase the fertility of lands that otherwise would be deprived of vital top soil.

The draft EIS makes no recommendations for the preservation of specific forested areas located in the Canal Zone through treaty agreement. No note

is taken of the number of non-adaptable species of flora and fauna which will be eradicated with the disappearance of the forests. There is no reference to the multitude of scientific papers on tropical studies which have resulted from the presence of protected forest lands in the Canal Zone, nor of the advantages accruing to all nations from the knowledge gained therefrom. Nor is there mention of the flora and fauna which will be inevitably lost before there is an opportunity to study them.

Question No. 3: What are the consequences of ceding these forests?

There will be a regression from a Garden of Eden to a weed patch! As forest land is cleared, roads will be built. Traditionally in Panama, as in most tropical American countries, a road whether on private or public land is an open invitation to squatters who immediately move in to farm, to cut lumber, or to graze cattle. Clearings will be subjected to many heavy rains during the long wet season, erosion will quickly set in leaving bare rock or unproductive sun-hardened clay. The watershed will be affected, floods will be a common occurrence, rivers will become heavily silted, and the land will become an infertile pasture or a weed patch.

In discussing the non-adaptable animals, I will refer to the birds as an example since I know them the best. Birds of tropical forests are particularly sensitive to disturbances of any kind. They have become unusually specialized in the use of a particular habitat. As that habitat shrinks they will be confined to a single stratum of the forest structure and thus they become increasingly vulnerable. Tropical forest birds have low reproductive rates and lay two or three eggs compared with the four to six of the temperate forest birds. Also, because predation in tropical forests is more intense, the ratio of young fledged to eggs laid is lower. These factors, together with low populations, make it difficult for tropical forest birds to recover from disturbances. Temperate forest birds can "bounce back" from severe population crashes within a few seasons. Not so with the tropical humid forest species.

Tropical forest birds are also adapted to the darkness of their environment. Certain species cannot tolerate bright areas, so much so that they avoid roads and streams which for them can represent insurmountable barriers. This can divide populations into several non-interbreeding segments with the result that birds will not be able to disperse easily from one area to another. It will be equally impossible for them to escape disturbances in their forest habitat or to colonize new areas when former ones become unsuitable.

Local forests receive considerable amounts of rain throughout the year -- at least 80 inches and sometimes as much as 120 inches, but no less than 5 inches in the driest months of the year. There is year-

round warmth which promotes profuse growth, and at the upper tree canopy there is an abundance of light. The forest floor, however, may receive only 10% of the available light due to the thick forest canopy. As a result, only a few plants which are ultra-tolerant of shade grow at ground level. The forest trees have experienced exceptional long stability and continuity. Nevertheless, they are extremely sensitive to disruption of their ecological cycles. Experience has consistently demonstrated that the clearing of tropical forests readily leads to a chain of degradation so that within a few years the impoverished land features soil on which the forest will have great difficulty in reestablishing itself.

Habitat disruption entailing agriculture, livestock husbandry, and forestry, drainage of marshes and other wet lands, highway construction and pollution will also be threatening the forests.

None of the foregoing items are addressed in the draft EIS, nor are the killing of wild birds, the taking or destruction of their nests, eggs, or young as the result of a lack of legislation enforcement. What of the 19 endangered species of mammals, reptiles and birds? And what of the esthetic, economic, or touristic interest such endangered species as the Great Curassow provide?

There is no cognizance of the 127 species that are long-distance migrants not known to breed in Panama, but which do breed in the United States. Included in these species are ducks such as the Blue-winged Teal; some hawks are the Everglade and Mississippi Kites, Sharp-shinned Hawk, Kestrel; forest birds such as the Yellow-billed Cuckoo, Yellow-bellied Sapsucker, Eastern Kingbird, Wood Thrush, Vireos and some 30 Wood Warblers as well as the Orchard and Baltimore Oriole and some Finches.

Regardless of the Canal, Panama has a reason to consider itself one of the major crossroads of the world. It is a crossroad for migratory birds who are harbored by the local forests which the draft EIS leaves unprotected and which at best is only casually mentioned in the draft. Incomplete lists of birds, mammals, reptiles, amphibians, marine life (manatees), seabirds, insects, fishes, green plants and fungi are provided in the draft EIS. More thorough listings are needed for better assessment of environmental impact.\*\*

Question No. 4: What are the remedies for adverse consequences which may result?

As I stated in my letter to the Canal Zone Governor published in the April "Toucan" (see enclosure):

The establishment of several parks and wildlife refuges in the Pipeline Road area and in the Achiotte-San Lorenzo compound on the northwest bank of the Canal should be encouraged as an emergency measure since these are important natural habitats that are in danger of being destroyed.





Emphasis must be placed on the fact that the present mature humid forest harbors a large number of non-adaptable species of plants and animals. They will be eradicated with the elimination of the forest vegetation.

It would be desirable if long-term provision were made to protect and maintain such established parks and wildlife refuges by ensuring available funds to defray the costs of a zoo, guards, and their transportation when the protected areas become the sole responsibility of the Republic of Panama. Funds could be provided by the U. S. Agency for International Development as was resolved at the Conference on the Avifauna of Central and Northern Latin America which convened at the Smithsonian Institution in Washington, D. C., 13-15 April, 1966. This, hopefully, would ensure that the protected areas become more than mere paper preserves.

I would like to mention that the Panama Audubon Society is totally apolitical. We are pro-conservation and follow the philosophy of the National Audubon Society. Thus, we will be vigilant to protect wilderness areas, refuges, and parks, and to encourage good use of nature's storehouse of resources. We dedicate ourselves to the pleasant task of opening the eyes of young and old that all may come to enjoy the beauty of our outdoor world, and to share in conserving its wonders forever.

Gentlemen of the Department of State, we ask that you save these tropical humid forests, the most rapidly disappearing biome on the face of the earth.

*James J. Pujals M.D.*  
James J. Pujals, M.D.  
President  
Panama Audubon Society

\* This critique has no political implications whatsoever.

\*\*The Panama Audubon Society is preparing a detailed "Toucan" edition featuring the environment of the tropical humid forests.

#### APRIL ACTIVITIES

**SCIENTIFIC MEETING:** Thursday, April 14, 7:30 p.m. at the JWB, Balboa. The guest speaker will be Dr. Richard Cooke, archaeologist and Smithsonian research associate. The subject of Dr. Cooke's talk, illustrated with slides, will be "Birds and Animals of Pre-Historic Cocle; cultural and zoogeographic implications"

Engaged in archaeological work in Panama since 1969, Dr. Cooke has concentrated primarily on the history of human settlements and adaptations in the lowland tropical environments. His excavations include sites dating from 5000 B.C. to the Spanish Conquest. Working until now in the dryer parts of the Isthmus, he hopes soon to conduct studies in the wetter areas of the Atlantic coast to test his theories about interrelationships between human groups with the same material culture but living in different microenvironments. Board members please note there will be a business meeting following the Scientific meeting

Thursday, April 28, 7:30 p.m., ATLANTIC SIDE  
All purpose room at Coco Solo Elementary School. Dr. Richard Cooke. Please attend.

**FIELD TRIPS:** Saturday, April 16. Dr. Dodge Engleman will lead a field trip to Atlantic side areas. Depending on the size of the group, the Tiger Trail, Skunk Hollow, or "Gordon Small" Road are the areas which may be visited. Everyone interested in participating is asked to be at the Margarita Service Center at 5:30 a.m.

Saturday, April 23: Barro Colorado Island. Due to the large number of Audubon members who wish to visit the island, another field trip has been scheduled. The Smithsonian Institute policy is to limit groups to a maximum number of 15 individuals per visit.

Since the trip scheduled for Saturday, April 23, is made up of individuals who were on the waiting list from the previous trip (March 26) the spaces are almost all filled. Anyone desiring to participate in a field trip to Barro Colorado is asked to Call Diana Ianoale at 52-6481 or 52-3274 (office) so that another trip can be arranged if there is enough interest.

#### PROJECTED FIELD TRIPS FOR MAY:

Gorgas Island in the Maje area of the Bayano. PeLAGIC trip to the Perlas Islands.

#### VOICE OF THE PRESIDENT

An open letter to the Governor\*

Dear Governor Parfitt:

The Canal Zone is the site of the most beautiful and most extensive, readily accessible island of lowland forest in Middle America. Within this green forested area is found a great variety of birds and large mammals, making it a naturalist's paradise.

It is possible that soon a new treaty, with its political considerations, will drastically alter this situation. Mr. Robert S. Ridgely, author of the excellent book A Guide to the Birds of Panama, states in the chapter on Conservation:

This surely will mean an end to the Canal Zone as it is presently known, and (unless the Panamanian government takes protective measures) will probably also mean an end to most of its forest. Certain areas, among the Madden Forest and Barro Colorado Island, will, it is hoped, continue to be preserved in its natural state. It is not out of place to make a plea here for preservation of a few additional areas, most notably Fort Sherman and San Lorenzo, the Achiotte Road area, and particularly the Pipeline Road area near Gamboa.

"For variety of birdlife, the Pipeline Road area near Gamboa is, without question, the outstanding easily accessible forest area in Panama. As such, it would make a wonderful wildlife reserve, and if properly protected could become a tourist attraction for Panama.

"For the present, it remains in the hands of the U. S. military, and the forests are intact (Though hunting is allowed), its future, like the future of the rest of the Canal Zone, is decidedly uncertain."

As President of the Panama Audubon Society, and as a private citizen deeply concerned about the future of the forest areas already mentioned I herewith make a plea that the Pipeline Road area be set aside as a park and/or a biological reserve. To establish such preserves, I would suggest that the following measures be undertaken:

1. The establishment of a park and wildlife refuge in the Pipeline Road area should be encouraged as an emergent measure since it represents an important natural habitat that is in danger of being lost entirely. Emphasis must be placed on the fact that the present mature, humid forest harbors a large number of non-adaptable species of plants and animals. They will be eradicated with the elimination of forest vegetation.

2. The ecosystems to be preserved should be specifically identified and described as a basis for management and legislative action.

3. In support of conservation measures, appeal must be made to the pride of the people of Panama and their Government officials, with emphasis on the beauty of the landscape and the uniqueness of the fauna and flora; the need for forest preservation as a means of maintaining soil and water; and the various economic benefits to be derived from conservation practices.

4. Legislation would be required forbidding the killing of wild birds, or the taking or destruction of their nests, eggs, or young, except for scientific or educational purposes; in the instance of game birds, legislation should ensure reproduction of the species, while the hunting of species found to be detrimental should be permitted only after careful study and

should be specifically regulated.

5. Legislation should be enacted to stringently protect those species in danger of extinction or local extirpation, or those of special esthetic, economic, or touristic interest e. g. the Great Curassow.

6. The cutting of trees along water courses, lakes, steep slopes, and road sides in protected areas should be forbidden in order to encourage the maintenance of trees in those localities.

7. Information on laws and enforcement methods in these reserved biological areas should be exchanged freely between the Canal Zone government and the Republic of Panama.

8. The attention of IPAT should be directed to the desirability of preserving avifauna as a means of fostering increased tourism on the part of visiting naturalists, ornithologists and bird watchers.

9. It would be desirable if long term provisions were made to protect and maintain the established parks and wildlife refuges by ensuring funds for the transportation of rangers when the protected areas become the sole responsibility of the Republic of Panama. Funds could be provided by the U. S. Agency for International Development as was resolved in the Conference on the Avifauna of Central and Northern Latin America held at the Smithsonian Institute in Washington, D. C., 13-15 April, 1966.

Finally, once accomplished, such an example of conservation success should be well publicized in order to stimulate similar action in other areas where conservation is badly needed.

How wonderful it would be if our forefathers had saved portions of the great forests that once covered Ohio! Nature asks only that we learn to live with her rather than destroying her. Here is an opportunity to do just that. I ask your intervention, Governor, in preserving existing forests for posterity.

Respectfully yours,

Jaime Pujals, M.D.  
President  
Panama Audubon Society

Mr. William Mansfield, III  
Office of Environmental Affairs (Room 7820)  
Department of State  
Washington, D.C. 20520


Dear Mr. Mansfield:

As an environmentalist, and a life member of the Sigma Xi, I take issue with the Department of State's Draft Environmental Impact Statement for the New Panama Canal Treaty.

Whereas an EIS is supposed to be an unbiased scientific study of environmental impacts, this Draft EIS appears to represent the result of a political study more than it represents the result of an apolitical scientific research. In general, the Draft EIS shows shallow scientific research and, if not distorted or erroneous in places, it contains many ambiguities. I have not recommended too much additional discussion or data. My comments are primarily editorial and designed to clear up only a few of the ambiguities.

I have confined the attached nine comments to refer to only the 43 pages of the basic part of the EIS. Each comment is divided into four parts: reference to a page and paragraph or section of the Draft EIS, a discussion, recommendation, and a brief reason for the recommendation. While a few of the discussions may appear lengthy and not follow your political beliefs, they are designed to bring out facts that have been overlooked or disregarded. I believe, however, that you will find that the recommendations are apolitical. If clarity is a goal, the recommendations should not detract from the EIS as they merely clarify your statements or delete extraneous material.

I would like to have a copy of all comments that are submitted, actions taken on the comments, and a copy of the Final EIS. Please send them to me at the above return address.

Yours truly,  
  
Thomas P. Strider

- Enclosures
- I Operational Aspects or Foreseeable Environmental Impacts
  - II Impacts of Varying Degrees on DOD Employees
  - II Racial or Nationality Slur
  - IV Clarification of Some of the Annual US Payments to Panama
  - V The "No-Action" Alternative
  - VI Postponement and Amended- or New-Treaty Alternatives
  - VII Adverse Impacts
  - VIII Commitments of Resources
  - IX Squatter Problems

COMMENT II  
IMPACTS OF VARYING DEGREES ON LOD EMPLOYEES

Reference II. Page 19, first sentence of bottom paragraph: "The Treaty will have little impact on DOD's own employees."

Discussion II. There currently is such a psychological impact on the DOD employees that a study team is examining whether or not the 5-year rotation needs to be waived in order to fill future US job vacancies. Further, per bottom of page 21, "The police, court and prison system of the Canal Zone Government is to be discontinued by the new Panama Canal Commission...." Currently, the Canal Zone Police (CZP) have civil and criminal jurisdiction throughout the Canal Zone. Although the military police have the authority to detain civilians on the military bases until arrival of the CZP, the CZP maintain the civil and criminal jurisdiction on those bases. In regards to traffic, speed limits and most traffic regulations in general are observed in the Canal Zone. There is such a big difference between the driving habits in the Canal Zone and the Republic of Panama that many DOD employees and dependents park cars in the Canal Zone and walk into Panama City and Colon instead of driving in the Republic. There have been many instances of Guardia Nacional (GN) official vehicles violating traffic regulations in the Canal Zone. Hence, a fair assumption is that once the GN have jurisdiction there will be many more violations of the traffic laws not only by GN vehicles but by other traffic. Therefore, these two impacts, among others, must be presumed as natural environmental outgrowths of the change in jurisdiction that will be felt by most LOD employees. First, a very decided change in traffic, noise, air pollution, safety on or near main traffic arteries as well as in housing areas and school zones. The change may be likened to a program: a forced move of a group of people from a quasi-rural or small suburban environment to a large-city atmosphere outside (and even on some) military bases. Second, the US jurisprudence (and presumption of innocence until proven guilty) will be replaced by the Panamanian system that even currently permits US citizens to be placed incommunicado in Panamanian jails on a drunken, emotional, or prejudiced whim of GN officials. (In the event that a listing of specific cases is desired for the record, names, dates, places, and circumstances can be provided; however, some of these have already been published by US newspapers.) (The extreme environmental difference between Panamanian jails and US-administered jails also is documented; however, it need not be mentioned in the Environmental Impact Statement as that subject deals more with human rights and the Impact Statement should be confined to US civil rights.)

Recommendation II. Substitute the following on page 19 in lieu of the referenced sentence: "Although the Treaty will have varying degrees of impact on the noise, air, and traffic environment, one overall impact on the people will be the change in civil and criminal jurisdiction. Each US and non-US employee will feel some adverse psychological impact from this jurisdictional change. Although this fear may be felt less by some DOD employees, there have been civilian employees on military bases as well as off those bases (and this includes both US and non-US employees) who have stated that they will go back to the United States if the Treaty is ratified."

Reason II. Accuracy.

COMMENT I  
OPERATIONAL ASPECTS OR FORESEEABLE ENVIRONMENTAL IMPACTS

Reference I. On page 2, section I.A. states that the "proposed treaty... will cover... Termination of previous agreements; United States rights... Implementation of the Treaty in ways which will protect the natural environment; The legal status of U.S. citizens connected with the operation and defense of the Canal...." On page 2, section I.B. states that the "Environmental Impact Statement addresses the Panama Canal Treaty itself" but mentions a "Treaty Concerning the Permanent Neutrality and Operation of the Panama Canal."

Discussion I. The paragraph on the bottom of page 3 is confusing and states: "The operational aspects of the proposed Treaty do not differ from current practice, and the Department of State does not believe that this Treaty will have foreseeable environmental impacts." (The underlining has been added.) In the event "the proposed Treaty" refers to the "Neutrality Treaty" that was ostensibly drafted to assure a neutral Panama Canal after the year 2000 AD, a tremendous difference in operational aspects would exist as the United States Armed Forces currently are stationed in the immediate area of the Panama Canal to assure that neutrality. After the year 1999 AD, the words of Panamanian negotiator Romulo Betancourt appear more applicable. In his address to the "505 Assembly" after the agreements were initiated by Ambassadors Bunker and Linowitz, he said words to this effect: "Once the gringo troops are out of Panama, they shall not return." In the event "the proposed Treaty" refers to "the New Panama Canal Treaty," then the Department of State that does not believe there are foreseeable environmental impacts should read these, and other, portions of the Draft Environmental Impact Statement:

page 17, "A considerable area of the Canal watershed lying outside of the Canal Zone has already been heavily deforested and hunted over... further deforestation... will require close cooperation between the new (Panama) Canal Commission and Panamanian authorities. Concern has been expressed... that... Panama... might leave inadequate funding for enforcement of environmental protection measures, e.g. policing of forest areas... insect control. This latter is important as it impacts directly on malaria control, a significant sanitation factor in the efficient operation of the Canal. A second source of concern has been articles in the Panamanian press criticizing Canal Zone Government arrests of Panamanians hunting and cutting trees illegally in the Zone. Other articles have discussed Panamanian exploitation of the Zone's natural resources after the Treaty takes effect. These have naturally aroused worries about environmental protection under the new Treaty."

page 17, "On balance, these are grounds for environmental concern."  
page 21, "... impact on employee welfare and morale... discontinuance of the hospitals, medical services and schools...."  
page 21, "In sum, actions under the Panama Canal Treaty will impact on the employment and other economic and social aspects of the human environment in the Canal Zone."  
page 21, "The police, court and prison system of the Canal Zone Government is to be discontinued."

Recommendation I. Delete last two paragraphs on page 2, all of page 3, the first paragraph on page 4, and all other references to the "Neutrality Treaty."

Reason I. Discussion of the "Neutrality Treaty" appears extraneous, especially when there appears to be no intent by the Government of Panama to respect that treaty.

COMMENT III  
RACIAL OR NATIONALITY SLUR

Reference III. Page 20, last paragraph: "...A potentially troublesome problem may be the future of Panamanian employees living in the Zone. Many of those are West Indian descendants and are resented by the Panamanian public...limited...popular resentments. In addition, the Embassy believes most of this group would qualify for preference visas if they opt to emigrate to the United States."

Discussion III. While true that there are Panamanians who resent the relative affluence of many West Indian descendants who work in the Zone, in most cases those same Panamanians resent the relative affluence of other people who work in the Zone. Consequently, the West Indian descendants should not be singled out as a group that are resented. The Panamanian public is comprised, like the United States, of people of all races and most nationalities. While true that there is a high percentage of West Indian descendants who work and live in the Zone, there also is a high percentage of West Indian descendants who do not work or live in the Zone and who comprise a proportionate percentage of "the Panamanian public." Many of those latter descendants have no cause to, nor do they, resent those who work in the Zone for they themselves are industrious workers — and, in turn, are either respected or resented for their relative affluence. In addition to industriousness, many of the West Indian descendants are characterized by another trait: the ability to communicate in two or more languages. While developed abilities are the cause of jealousies and resentments, such a discussion is petty and not worthy of placement in a formal document such as an environmental impact statement. Further, the belief of "the Embassy" is not understandable in light of the provisions of the Immigration & Nationality Act (8 U.S.C.) which would require that in order to qualify for preference visas one must be sponsored by a relative legally residing within the United States, be able to secure Labor Department certification, and meet other requirements which would preclude such immigration by the majority of persons in this particular group. Current legislation now pending before the Congress would further reduce the possibility of such immigration.

Recommendation III. Change all after the first sentence of the paragraph to read: "A potentially troublesome problem may be the future of Panamanian employees living in the Zone. Many of these are West Indian descendants. They number only about 1500, however; and Panamanian officials believe they can handle this limited number. Further, section 4 of Article VI of Agreement in Implementation of Article III of the Panama Canal Treaty states that 'in order to protect the interests and welfare of employees of the United States who are not United States citizen employees...the Republic of Panama shall give such persons...the opportunity to occupy by lease or rental or...purchase at reasonable prices, the units which they are occupying.'"

Reason III. Appropriate deletions.

Footnote III. Such a proviso in the Treaty, although appropriately permitting non-US employees to purchase their homes that they have heretofore not been permitted to purchase, is highly discriminatory. It discriminates against the US employees who also are occupying homes that were built with Federal US dollars.

COMMENT IV

CLARIFICATION OF SOME OF THE ANNUAL US PAYMENTS TO PANAMA

Reference IV. Page 25, last sentence of first paragraph of section III.B.7: "In addition, Panama will also get a fixed sum of \$10 million yearly and an additional \$10 million per annum if Canal traffic and revenues permit."

Discussion IV. Concerning the second \$10 million, Section 4(c) of Article XIII of the Treaty states: "In the event Canal operating revenues in any year do not produce a surplus sufficient to cover this payment, the unpaid balance shall be paid from operating surpluses in future years in a manner to be mutually agreed." (Underlining added.)

Recommendation IV. Change sentence to read as follows on page 25 of the Environmental Impact Statement: "In addition, Panama will also get a fixed sum of \$10 million per annum payable each year (or owed) as Canal traffic and revenues permit."

Reason IV. To make it clear that the second \$10 million is a cumulative amount.

COMMENT V  
THE "NO-ACTION" ALTERNATIVE

Reference V. Page 35, the three paragraphs of section IV.A.

Discussion V. The "no-action" alternative does not offer the best assurance of avoiding significant environmental degradation even if the status quo were preserved. There are better ways of preserving the environment; however, the status quo could be described as one of the better ways.

Regarding the second and third paragraphs. These are "political" statements and discuss "worst case conditions" if the status quo is maintained. They do not belong in an Environmental Impact Statement unless they are so labeled and the "worst case conditions" and the "best case conditions" both discussed with the same amount of enthusiasm and impartiality. Unless the "best case conditions" are properly discussed, the discussion of only the "worst case conditions" might lead a reader to believe the Environmental Impact Statement was prejudiced.

Recommendation V. Change first paragraph to read: "This option may offer one of the best assurances of avoiding significant environmental degradation in the Canal Zone if it could be said with confidence that such a course of action would preserve the status quo ante."  
Deletes second and third paragraphs or add appropriate "best case conditions" that reflect what the international situation could be like in the event the United States regains respect by failing to acquiesce to another Day-of-Pigs or Vietnam "arrangement."

Reason V. To incorporate a writing technique used by the military and others when presenting an estimate of the situation: give the commander an unbiased look at possible courses of action.

Reference VI. Pages 35 - 38, sections IV.B., C, and D. Reference is also made to Comment V.

Discussion VI. As written, referenced sections are confusing. Section IV.B., (postponement), while appearing similar to Section IV.A., also appears like Section IV.C. since Section IV.C. is described as an alternative "presently being pursued." If proposals that would better the environmental aspects are "being pursued" then, presumably, better economic aspects could also be pursued since both pursuits add up to postponement (Section IV.B.). Whether those "pursuits" (Section IV.C.) would be described as possible amendments to the Treaty's provisions, "changes in the present draft Treaty" (section IV.D.) or a "new Treaty with stronger environmental provisions" (section IV.D.), the titles given to these sections are confusing. As indicated in Comment V, the discussions appear to examine alternatives without providing pertinent pros and cons.

Recommendation VI. Rewrite these sections; and when rewriting, attempt to further clarify or amplify certain statements. For example, this statement appears on page 37: "US citizen employees will enjoy rights and protections similar to those of US Government employees elsewhere abroad". More of a whole truth would be to indicate that not only US citizen employees but also non-US citizen employees currently enjoy the US jurisprudence system and they will be going from a relatively good system to a bad system.

Reason VI. For clarity.

COMMENT VII  
ADVERSE IMPACTS

Reference VII. Page 39, section V. reads: "The principal unavoidable adverse impact resulting from actions under the proposed Treaty will be the loss of jobs... There are also two other possible adverse impacts: increase in Canal tolls... increase in transcontinental rail traffic in the U.S.... and extensive deforestation of the Canal Zone... adverse environmental impacts in areas of sanitation, pollution control, safety and fire prevention, as well as forest and wildlife preservation...."

Discussion VII. Section V. addresses an economic factor on the human environment for only those who would lose jobs. There also will be adverse economic impacts on those who retain jobs. However, a greater impact on the human environment for those remaining in the Canal Zone environs will be the psychological factor impact due to the loss of rights and protections currently known as US civil rights. (Please see Recommendation II).

Recommendation VII. Change the first sentence of paragraph immediately under the title of section V. to read: "There are two principle unavoidable adverse impacts resulting from actions under the proposed Treaty: loss of jobs by certain American and non-American employees of the Canal Company and the Canal Zone Government, and loss of basic civil rights granted to the other employees that emanate from the United States Constitution." Further, change the title to read: "Unavoidable Adverse Impacts of Proposed Treaty".

Reason VII. To add a factor that was overlooked.

Footnote VIII. The major significant Federal impact that the proposed Treaty would cause is the "loss of face" of the US in Latin America. It would be even greater than the face (and faith) we lost at the Bay of Pigs.

Reference VIII. Page 41: "VII UNRECOVERABLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES Under the terms of the proposed Treaty, the jobs of a number of U.S. citizens and non-American employees of the Canal Company and the Canal Zone Government will be lost. If the environmental protection measures in the draft Treaty and the supplementary watershed management project should prove ineffective, the forests and associated ecosystem in the Canal Zone could disappear."

Discussion VIII. Section VII is correct as far as it goes but it does not go far enough. Although mentioning job losses, it fails to mention dollar losses to other US taxpayers and the US Treasury that will accrue due to:

1. Loss of US jobs means loss of dollars from those people who were paying Federal -- and some State -- income taxes.
2. The 30 cents per Panama Canal ton annual payments to Panama that vary from \$42 million in FY78 to \$49.5 million in FY84 (per current projections with current tolls as shown on page 25), or greater payments if tolls increase.
3. The first and second \$10 million annual payments that total at least \$20 million annually (and could be greater if revenues do not permit payment of the second \$10 million and we have to pay interest on the debt).
4. The \$10 million annual payment for police, fire protection, street maintenance, street lighting, street cleaning, traffic management and garbage collection prescribed by section 5, Article III of the Treaty. Some further mention concerning:

police -- from desired Canal Zone Police to Guardia Nacional (see Comment II). fire protection -- from best trained paid fire units in Latin America to Panamanian Bomberos. While true that the Panamanian Bomberos also represent some of the most dedicated and best trained firemen in Latin America, it is also true that the majority are volunteers. It is also true that the Canal Zone Fire Division has a high percentage of saves and partial saves whereas Panama has had quite a bit of total losses. It is also true that the Bomberos are untested and unproven in shipboard firefighting capabilities. Currently it is doubted that fire safety inspections and shipboard firefighting have been considered in the annual payment.

street maintenance and cleaning -- pot holes, etc are not uncommon in Panama; they are not prevalent in the Canal Zone.

traffic management -- the difference amounts to night and day (see Comment II).

5. Loss of annual revenues (\$39.3 million in FY76 per page 13) from Panama Canal Company retail outlets.
6. Loss of \$752 million unrecovered US investment in the Canal (page 5, Tab B).
7. A conjectured \$20 million watershed management project (page 37) that would compete with drought areas in the US for water project monies.
8. Although top of page 3 of Tab B says "no major increase is contemplated in AID loans and grants," I believe the figures on page 2 of Tab B should be listed: "United States has pledged efforts... for an economic program of loans, loan guarantees and credits... up to \$200 million... in credits, up to \$75 million in AID housing guarantees, and \$20 million in... loan guarantees. Panama also will receive up to \$50 million in foreign military sales credits."

Recommendation VIII. List the approximately \$120 million annual payments/losses in addition to the larger, one time payments as irreversible and irretrievable commitments of resources.

Reason VIII. For clarity.

Reference IX. On page 33, section III.D.3, states in the first paragraph: "In view of the continuing migration of poor peasants to urban areas in Panama, fears have been expressed that squatter settlements may be established in Canal Zone areas which will revert to Panama under the Treaty and that these will present health and sanitation problems." The third paragraph reads: "Panamanian officials are not aware of plans for any activities which would attract large numbers of people to Gamboa and they discount reports of potential crowding in the area."

Discussion IX. Gamboa is in the middle of the Canal Zone (map at Tab A) and is not a large city, yet, while true that it is at the confluence of the Chagres River and the Panama Canal, making it a "natural" for an increase in population when the environmental laws are relaxed, there is no squatter problem there at this time and the third paragraph currently may be considered correct. The chronic squatter problem does not immediately concern the Gamboa area. The chronic squatter problem is, and has been, along the borders between Acon and Curundu Heights in the Canal Zone and Panama City in the Republic. There also is a problem with the high density population of Colon along its border with Cristobal in the Canal Zone. Both of these border areas have a continual high frequency of muggings and thefts; in fact, so many thefts are traced to the squatter district known as Hollywood that the Curundu Heights townsite is jokingly called the "Hollywood PX." The residents of Curundu are fearful that once the fences are removed if the Treaty goes into effect (and Curundu Heights turned over to Panama) that the squatter area will expand into the remainder of the Curundu area and Curundu correspondingly will be vulnerable to more and closer squatters. Since the law enforcement bodies of the Republic of Panama appear to encourage, or permit, the building of squatter shacks in the areas that "border the gringos," it is a fair assumption that the practice will continue. Also, the same Panamanian officials that discount "reports of potential crowding" in the Gamboa area would probably discount potential crowding in the Panama City and Colon areas. This crowding problem is not unique to Panama. Most developing countries (and some "developed" countries) continue to have people move from the rural districts to the cities. The Panama City area, without the current Canal Zone restrictions, would naturally expand into what is now the Canal Zone and, in time, develop a string of small or large communities along the Canal and would include Gamboa. The third paragraph indicates that the "Panamanian officials" have not attempted to use a crystal ball, or project community developments or land-use projects too far in advance. During recent years they have permitted deforestation, and publicly scorned the Canal Zone Police for attempting to limit deforestation in the Canal Zone (see Discussion I). About five years ago it was conjectured that if those (deforestation and) resulting increases in population along the Canal Zone borders continued that the resulting sedimentation might close the Canal in 50 years. The deforestation continues. Crowding continues. Sanitation problems continue.

Recommendation IX. Delete the third paragraph of section III.D.3.

Reason IX. The third paragraph appears to distort the squatter problem by calling attention to Gamboa; whereas, the principal squatter problems are nearer the ports of Balboa and Cristobal.

SUBJECT: Response to Draft Environmental Impact Statement for the  
New Panama Canal Treaty

FROM: Steve West  
Box 326  
Alpine, Texas 79830

DATE: 2 October 1977

TO INDIVIDUALS CONCERNED:

The following will serve as my response to the above named paper presented by the Department of State in August of 1977. In view of the very short time allowed by the Department of State for comments regarding this paper, my remarks will be most reluctantly shortened. It is unfortunate that such an important matter as this will not be explored as fully as possible by all concerned. For example, I did not receive my copy until the day after the final comments were to be accepted. Even with the extension it leaves very inadequate time for proper presentation of facts regarding the ecosystems of the Canal Zone.

Because of limitations of time I will generally restrict my remarks to those sections dealing with the natural areas, flora and fauna of the Zone.

To establish my credentials to comment on this area I offer the following information. I arrived in the Canal Zone on 19 April 1973 and left on the 30th of December 1975. While there I was active in the activities of the Panama Audubon Society. I served as Scientific Chairman from April 1973 until December 1975, as newsletter editor from October 1974 through December 1975 and as President of the Panama Audubon Society during all of 1975. Although I was in the Army while in the Zone, my job was such that it allowed me a great deal of time in the field conducting my own research. On the average I was in the field 5 days out of 7. I have daily field notes regarding distribution, behavior and habits of the flora and fauna of the Zone for every day I was there. Some of my field work took me to other parts of Panama and I can honestly say I studied Panama from the Costa Rican to the Colombian border. I have had several papers published in various scientific journals as a result of my work there and have several more pending.

page 9:

In the second paragraph there is a discussion of the Canal Zone forest preserve. The report seems to realize the importance of the area and comments on encroachment of the area from Panama. This was true throughout the time I was there. But in talking with various people who had the power to stop this, I was told that pressure from the State Department kept them from doing anything about it. It seemed that greater emphasis was being placed on preserving what was felt to be "good" US-Panama relations. This is an extremely important biological area and I feel certain that it will be converted into farming areas if the current Panama

government takes control of the area.  
pages 17-8:

At the bottom of page 17 and the top of the following page, the report expresses concern and then tries to minimize feelings regarding the conservation record of Panama involving forested areas. It seems rather foolish to feel that the Republic of Panama will change overnight once they gain control of the Zone. If Panama is clear-cutting forest today and obtain the Zone tomorrow, you can only expect more clear-cutting to continue. Cutting of the forest has taken place in the Zone-illegally-by Panamanians, often at the encouragement of their government.

RENARE has one of the worst conservation records in Latin America. If this is hard to believe, I suggest whoever is responsible for pages 17 and 18 visit Cerro Campana, Panama's first national forest. And then expect Madden Forest, Pipeline Road, Sherman Forest and eventually Barro Colorado Island to look the same. The report states that USAID is requesting \$20 million to strengthen the capabilities of RENARE. Since they have only requested it, and do not yet have the money on hand, it seems a bit foolish to place much faith on this.

The report correctly states that it is in Panamanian self-interest to preserve the forest. But even this does not guarantee a single tree will be set aside. During 1974 and part of 1975 there were consistent press reports in the Panamanian news media that timber leases had already been sold by the Panamanian government to cut Madden Forest and Pipeline Road.

pages 29-32:

The report states that RENARE plans on incorporating the Madden Forest Reserve into their park system. These may be their plans but again you must look at their only national park, Cerro Campana. With a greater population pressure around Madden Forest than around Cerro Campana and with the recent conservation record of the Republic of Panama how can any credible report accept RENARE's plans? If we turn the Madden Forest Reserve over to Panama we can only expect this valuable area to be turned into pasture.

The section on Barro Colorado Island was quite interesting and only points up another of several statements that conflict each other through the report. The report continually places faith in Panama's efforts to protect the environment. But here it states in effect, that we need not worry about what happens to Barro Colorado Island because, "three peninsulas opposite the Island are held by the Institute under license from the Canal Zone government. These areas will continue under the Canal Commission's control and this should continue to afford protection to the island and its habitat." If indeed Panama does have such a great conservation record, why the great emphasis on the three peninsulas which will serve to protect the island? If Panama did have a good record, we wouldn't have to worry about what would be happening to the peninsulas or the island.

The area known as Pipeline Road is most critical. This is no doubt one of the most unique areas in Latin America. The great diversity of animal and plant life is possibly not equaled in a similar size area anywhere in the New World. Other areas may have more of certain groups but overall, this area would probably come out on top.

Three alternatives are hypothesized for this area. One, giving the area to Panama and then renting it back from them as a Tropic Test area. This seems a little unnecessary and expensive since we already control the area. Why not keep it and arrange for its turnover to Panama in the year 2000? By then we can hope that Panama will have realized the great wealth they have in their flora and fauna.

A second alternative is for incorporation into the Panamanian park system. The safety of such a move has already been discussed. Until RENARE can prove they can manage other areas under their jurisdiction, it would be wrong to give them a valuable area such as this.

The third alternative-slash and burn or commercial timbering-is what will happen if the area is given to Panama. At present the area is being hunted by Panamanian and often American hunters who find the abundance of animals greater than that in neighboring Panama. This over-hunting and hunting of rare and endangered species is a crime which will only be compounded by turning the area over to Panama. At least under the present conditions there is some protection for some forms of life.

The Fort Sherman-San Lorenzo-Achiote area will be in somewhat better shape under the proposed treaty. This is fortunate because this too is a very rich area but constant vigilance must be maintained to see that the area is preserved while under US jurisdiction and that once Panama takes over in 1999, they realize the importance of the area. All of this is assuming that the treaty passes the US Senate.

At the bottom of page 30, the draft statement places undue emphasis on the fact that Panama is a signatory to the 1940 Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere. Surely the State Department realizes that signing a document does not necessarily mean that it will be carried out. Rather we should look at the actions of Panama since 1940 to judge their environmental awareness. Then we will come to the correct conclusion that the 1940 signature of Panama to this document means absolutely nothing.

The Harpy Eagle-which is listed as an endangered species-is short and stuffed as a trophy throughout Panama. The bird is considered to be the personal property of the military government.

Sea turtles can be commonly found in Panama-at the Panama City Fish Market. This is spite of the fact that Panama boasts of "strict conservation measures" and that many are also endangered species.

The Resplendent Quetzal is also on the endangered list and is also commonly shot in western Panama for the long upper tail coverts (which look like tail feathers but are not). This too is against the law but the law is ignored.

Macaws are gone from central Panama although they were once abundant there. Again the blame can be placed on the poor conservation record of Panama.



the Canal Zone. Forests cover almost the entire zone, rather than just the three small areas shown on the map. If the State Department desires, I will be glad to provide your organization with a correct map, showing you where the forests are. That is if the State Department is interested in presenting a true picture.

RECOMMENDATIONS:

I present the following recommendations in hopes that we can all have a more environmentally sound treaty rather than the smoke screen we are getting. I also make the following recommendations with the full knowledge that none will be considered by the State Department because they are out to sell a treaty, at whatever the cost.

- 1) A new treaty and a new draft environmental impact statement.  
The current masterpiece is totally inadequate. No mention is made of the multitude of endangered species found in the zone or what Panama will do to safeguard them. In light of past action by the dictatorship, we can be assured than Torrijos rule of the forests and fauna will only result in their elimination.
- 2) An honest and open policy by the State Department regarding the treaty.  
This Draft EIS is full of mistakes, is poorly written and inadequately prepared. Only someone who has never been to Panama or the Canal Zone would be able to swallow the lines that the Draft EIS presents.  
Your own call for comments was only an attempt to shut off public debate on the matter. The law provides for 45 days. Your set it at 30 days and start the days for comment 7 days before your report is even released. How is someone supposed to comment on something that has not even yet been released? Perhaps State Department wizards can do so but normal mortals find it difficult.  
Doing something as simple as only allowing 23 days for public comment stifles a lot of comment. Before the "extension"-which was necessary if the State Department was to follow the law-I had received my copy of the Draft EIS one day after the final day for public comment.  
There is certainly circumstantial evidence here to suggest that the State Department was not interested in public comment.
- 3) Use of local experts in preparing future reports.  
Again I doubt that a single biologist, ecologist or environmentalist figured into the preparation of this report. It might enhance your credibility if you used them in the future. You might not like what they say but at least it would be the truth.

A final statement is simply that the current proposed treaty spells disaster for the ecosystems of the Canal Zone. If the State Department is honestly concerned about this matter, a new treaty or serious revision in the current one is in order. But if the

Unfortunately there are quite a number of other instances such as those just listed. It should be obvious however that the 1940 Act which the State Department is so proud of, probably means absolutely nothing to the current Panama government.

page 35:

A certain portion of page 35 could well be dubbed "Grimm's Fairy Tales." Under section A. No action. It is true that this would offer the best assurance of environmental protection. The scenario drawn up on the page regarding no action on the treaty is no more than an opinion. I and anyone else can draw up opposing scenarios, to support our side, which is exactly what the State Department has done here.

The Draft EIS talks about the possibility of violence if a new treaty is not ratified. During the time I lived in Panama I read several statements in the Panama press where American officials stated the possibility of violence if a treaty was not forthcoming. This was always followed by additional reports in the Panama press from various political leaders, backing US statements. It seems to me that if there is violence, the State Department has at least helped in putting the idea into some people's heads.

Your scenario is possible I must admit. But so are others. For example, the treaty fails. Torrijos is overthrown and national elections are held. A democratically elected government negotiates a new treaty which passes. The new government is concerned with the environment, they have the canal and the environmentalists, the people concerned about human rights and the Panamanian people are all happy.

Which scenario is more likely? You don't have any idea and neither do I. But Section IV, Part A. is a fairy tale.

page 37:

Here the Draft EIS discounts the possibility of a new treaty "with stronger environmental provisions." The EIS goes on to state that "no serious omissions have been identified in the present proposed . . . provisions."

There are many reasons for this. One is the State Department's attitude that we must have a treaty at all costs. They have shown this in many ways, not the least of which is a very poorly and inadequately prepared Draft EIS. Also in cutting down the amount of time for public comment.

The whole report seems to be a total waste of paper. There is not even a list of environmentalists consulted regarding the forests and wildlife and what impact the treaty will have on them. For all the reader knows, not a single environmentalist, familiar with the Canal Zone ecosystems took part in the preparation of the report.

I am intimately familiar with the area and that is my conclusion. You are only hurting your case by presenting this sham.

As a final statement, the map following page 43 is totally incorrect and I doubt that the maker of this map has ever been to

State Department is not concerned with the environmental impact of the new treaty then go ahead with this one. Because this proposal shows a total lack of concern for the environment. I am only glad that I do not have to live with the conscience of the persons who prepared this Draft EIS.

If a decision is made to prepare a more accurate report I will be glad to make my notes available. But they will only be part of a fair and honest treatment of this issue and certainly not one like the one just presented.

Respectfully yours,

*Steve West*

Steve West  
Box 326  
Alpine, Texas 79830

cc:  
John W. Wall  
National Audubon Society  
Panama Audubon Society  
Frank Smith  
Mate Gale

*Jaime Pujols*

9616 West Bexhill Dr.  
Kensington, Md. 20795  
September 28, 1977

Mr. Lindsey Grant  
Deputy Assistant Secretary for  
Environmental & Population Affairs  
Department of State

Dear Mr. Grant:

This is in response to the notice in the Federal Register for August 29, 1977 (42 FR 43466) inviting comments on the draft environmental impact statement for the Panama Canal Treaty dated August 1977, hereinafter referred to as the "EIS." These views are strictly my own and have not been coordinated with any government agency, official, or individual.

89

A reading of the EIS as a whole suggests a number of questions as to the sufficiency of the document under the National Environmental Policy Act of 1969 and implementing regulations and judicial decisions, particularly in reference to the requirement for consideration of the environmental impact of the proposed action at all stages of the decision making process, but these comments are limited to consideration of the environmental effect of increases in rates of tolls required by the proposed new treaty, discussed at pages 25 and 26 of the EIS.

In effect, the EIS concludes that assessment of the economic impact of the treaty is presently impossible because of lack of data as to costs of operation of the Panama Canal after the treaty goes into effect. The EIS then assumes increases in tolls of 25% to 35% and concludes that the environmental effect of such increases would be no greater than the impact of the tolls increases of 19.7% and 19.5% that went into effect in 1974 and 1976, respectively.

In my view, none of these assumptions and conclusions can be supported. In 1978, costs of operation of the Panama Canal based on the 1978 budget program adjusted for annual treaty payments to Panama (\$73 million) and other changes in revenues and expense resulting from the treaty will approximate \$392 million, and revenues from tolls and other sources are estimated at \$311 million. Under the statutory formula enacted by Congress, tolls for use of the canal are required to be established at rates sufficient to recover costs of operation so that an increase in tolls rates sufficient to increase tolls revenues by \$81 million, or approximately 46%, will be required.

Assuming for purposes of this calculation that an increase in rates of tolls of 46% will produce an increase of that amount in total tolls revenues, the tolls increase required by the treaty would be as follows:


	<u>Present Rate</u>	<u>New Rate</u>
Laden	\$ 1.29	\$ 1.88
Ballast	1.03	1.50
Displacement	.72	1.05

The assessment of the environmental impact of the 1976 increase in tolls was based on traffic projections and estimates of sensitivity of Panama Canal traffic to tolls increases that concluded that over a period of ten years, increases of 50%, 75% 100%, and 150% in the rates in effect prior to July 1974 would result in reduction of cargo movements through the canal by 11.5 million, 28.8 million, 49.1 million, and 80.1 million cargo tons, respectively. In comparison to rates in effect prior to July 1974, the 1976 tolls increase resulted in a cumulative increase of 49.5%, so that the environmental effect of the increase was analyzed from the standpoint of loss or diversion of 11.5 million cargo tons of canal traffic. However, the increase of 46% over 1977 rates required by the treaty would represent a cumulative increase of 119% over the rates in effect prior to July 1974, so that on the basis used in the Environmental Assessment of the 1976 proposal to increase tolls, it would be necessary to consider the environmental effect of loss or diversion of about 50 million cargo tons -- a far more serious loss than the 11.5 million tons used in the 1976 Assessment. Accordingly, the conclusion that the rate increases required by the treaty would not have a more significant impact on the environment is not supported by the analysis in the 1976 Assessment cited on page 26 of the EIS and attached to the EIS at Tab F. The proceedings on the 1976 tolls increase point toward the contrary conclusion.

Finally, it seems apparent that neither the amount of the tolls increase required by the treaty nor the environmental impact thereof can be determined with any degree of confidence without an updated ten-year projection of traffic and tolls with estimates of the sensitivity of Panama Canal traffic to tolls increases of up to 150%. Changes in economic conditions affecting canal traffic since the last ten-year projection as well as the impact on traffic of the proposed treaty suggest that on the basis of data presently available, no reliable conclusions can be drawn as to the future volume of traffic, tolls revenues, or the environmental effect of increased rates of tolls.

The basis for the various conclusions reflected in the preceding paragraphs are discussed in the attachment in as much detail as possible within the time constraints imposed by the notice.

Very truly yours,



W. M. Whitman

Enclosure

time, the problem is not greatly different from that involved in any projection of future operating results, and the process is essential to adjusting of tolls. Furthermore, an approximation of such operating results and consequent required changes in tolls is an indispensable prerequisite to assessing the environmental effect of an action that obviously will result in some increase in tolls rates. The EIS assumes that such increases will be in the range of 25% to 35%. For reasons shown below it appears that this estimate is too conservative and that the required increase in tolls will be substantially greater.

One basic problem in the assessment of the environmental impact of changes in rates of tolls is the absence of any reliable, up-to-date projection of Panama Canal traffic over a ten-year period at present toll rates, or assessment of the effect on that traffic of changes in rates of tolls of the magnitude required by the treaty. The latest authoritative ten-year traffic projection was made for the Panama Canal Company in 1974. A later projection, made in 1976 at the time of the increase in Panama Canal tolls in that year, covers only the period 1976-1979. The last study of sensitivity of canal traffic to tolls increases in various amounts was made in 1975, based on the 1974 traffic projection. All responsible studies agree that the maximum effect of increases in rates of tolls on traffic develops over a ten year period, and that, comparatively, there is little impact of such increases in the first year.

The EIS assumes that the new treaty will become effective in fiscal year 1978. In the absence of other reliable data, the best source of projections of Panama Canal revenues and operating expenses for that year is the budget plan of the Panama Canal Company for 1978 as submitted to Congress in early 1977 under the provisions of the Government Corporation Control Act, with such adjustments required by the new treaty as can be identified. Appendix to the Budget, Fiscal Year 1978, pp. 306 et seq. See also, Hearings of a Subcommittee of the Committee on Appropriations, House of Representatives, 95th Cong., 1st Sess., on the Department of Transportation and Related Agencies Appropriations for 1978, Part 1, pages 578 et seq.

The results of operation for fiscal year 1978 projected in the 1978 budget program are shown in Table 1:

This is in response to the notice in the Federal Register for August 29, 1977 (42 FR 43466) inviting comments on the draft environmental impact statement for the Panama Canal Treaty dated August 1977, hereinafter referred to as the "EIS." These views are strictly my own and have not been coordinated with any government agency, official, or individual.

A reading of the EIS as a whole suggests a number of questions as to the sufficiency of the document under the National Environmental Policy Act of 1969 and implementing regulations and judicial decisions, particularly in reference to the requirement for consideration of the environmental impact of the proposed action at all stages of the decision making process, but these comments are limited to consideration of the environmental effect of increases in rates of tolls required by the proposed new treaty, discussed at pages 25 and 26 of the EIS.

On page 26 of the draft EIS, reference is made to the Environmental Assessment of the Proposed Increase in Rates of Tolls for Use of the Panama Canal dated April 1976 (hereinafter referred to as the "1976 Assessment") which I prepared for the Panama Canal Company for use in making a decision on the then pending proposal to increase tolls by 19.5%. For reasons more fully explored below, I do not believe that the 1976 Assessment will support the conclusion that the tolls increases required as a result of the treaty would have no greater environmental impact than that of the 1976 increase. Some of the reasons that lead me to that view may be helpful to you in further consideration of the environmental impact of the tolls increase that will result from the new treaty, if ratified and proclaimed.

On page 25 the draft EIS states that "It is not possible at this time to estimate what percentage increase above current tolls will be necessary to cover payments to Panama under the treaty and that the amount of the increase will depend on the cost of operation after the treaty and the impact on canal traffic of Alaskan oil shipments. The movement through the canal of Alaskan oil is, of course, only one element in the projection of Panama Canal revenue out of which costs of operation are required by law to be paid. With this qualification, the statement does indicate the appropriate process for adjusting rates of tolls, i.e., the comparison of revenues with costs. The amount of the excess of costs over revenues indicates the amount by which rates of tolls must be increased.

Although costs and revenues for the period following ratification of the proposed treaty cannot be precisely known at this

Table 1

Projected Results of Operation  
Panama Canal Company - FY 1978

<u>Revenue* (millions)</u>	
Tolls . . . . .	\$ 178
Other . . . . .	133
Total revenue	\$ 311
<u>Expense (millions)</u>	
Operations . . . . .	\$ 209
General corporate . . . . .	95
Capital replacements . . . . .	22
Total expense	\$ 326

\*Based on 142 million PC net tons

For purposes of determining what changes in rates of tolls would be required by the proposed treaty, certain revisions must be made in the costs and revenues projected by the 1978 budget, including (but not necessarily limited to) the following:

Costs of operation.

1. Treaty payments. The proposed treaty provides for the following direct annual payments to Panama:

- a. 30¢ per Panama Canal ton, (Art. XIII);
- b. \$10 million from canal earnings, (Art. XIII);
- c. \$10 million "if Canal traffic and revenues permit" with provision for carry over of unpaid amounts to future years, (Art. XIII); and
- d. \$10 million to reimburse Panama for governmental services, (Art. III).

Under the treaty, all payments to Panama are to be adjusted periodically for inflation.

The total of the payments to Panama has been estimated at \$1.8 billion over the life of the treaty. Address to National Assembly of Panama by Minister of Planning Nicholas Ardito Barletta, August 19, 1977.

As indicated above, the 1978 budget projects use of the canal by ships aggregating 142 million Panama Canal tons in that year. The table on page 25 of the EIS projects 140 million tons for 1978 rising to 165 million tons in 1984.

On the basis of these projections, the total direct payments to Panama provided by the treaty, without adjustment for inflation, are shown in the following table:

Table 2

Direct Payments to Panama under Proposed Treaty (in millions)					
Year	Estimate Source	PC Tons	30¢ PC Ton Payment	Annual Govt. Services	Total
1978	EIS	140	\$ 42	\$ 20	\$ 72
1978	Budget	142	42.6	20	72.6
1984	EIS	165	49.5	20	79.5

When added to the total estimated costs shown in the 1978 budget program (including capital expenditures) before adjustment for other changes in operating expense, the payments to Panama shown above would increase costs to the extent shown in the following table:

Table 3

Unadjusted Costs of Operation Reflecting Payment to Panama under Proposed Treaty (in millions)				
Year	Source	Treaty Payments	1978 Budget Costs	Total Costs
1978	Budget	\$ 72.6	\$ 326	\$ 398.60
1978	EIS	72.0	326	398.00
1984	EIS	79.5	326	405.00

2. Offsetting costs savings.

The proposed treaty will result in some cost savings as a result of the discontinuance of the Canal Zone Government and transfer to Panama or to the private sector of some of the business-type activities of the Panama Canal Company. Most, if not all, of these savings will occur in general corporate expense and activities now funded first by appropriation and then reimbursed to the Treasury from revenues and payments by the Panama Canal Company of the net cost of the Canal Zone Government. The budget program for fiscal year 1978 shows the following components of the net cost of the Canal Zone Government:

Table 4

1978 Net Costs of Canal Zone Government

Activity	Cost (thousands)
Customs and immigration . . . . .	\$ 1,484
Postal service . . . . .	3,024
Police protection . . . . .	9,311
Fire protection . . . . .	3,909
Judicial system . . . . .	307
Education . . . . .	24,754
Public areas and facilities . . . . .	5,062
Internal security . . . . .	352
Other civil affairs . . . . .	873
Health and sanitation . . . . .	30,740
General corporate expense . . . . .	6,152
Total costs	\$85,968
Recoveries of cost	63,132
Net cost of Canal Zone Government	\$22,836

Under Article III of the Treaty and Annex I (Executive N, at page 27) customs and immigration services, postal services, education, and health services will not be provided by the Panama Canal Commission after the effective date of the treaty. Other activities and services will be discontinued at the end of a 30-month transition period. The cost of the services that will be terminated immediately totals \$60 million of the total gross cost of the Canal Zone Government, but this will not produce a saving in that amount to the Panama Canal Commission inasmuch as the costs of health services, \$30.7 million, and most of the cost of education, \$24.8 million, are recovered from recipients of the services, so that the reduction in the net cost paid at present by the Panama Canal Company appears to be some \$5 million in 1978. Part of this saving will be offset by reimbursement to the Department of Defense for education furnished to dependents of U.S. citizen employees of the Panama Canal Commission.

In addition, the general corporate expense included in the 1978 budgeted costs should be reduced by \$519,000 now paid into the Treasury by the Panama Canal Company in reimbursement of part of the \$2 million annuity payable to Panama under existing treaties abrogated by the new treaty.

Other savings in operating expense as a result of reduction of payroll and other costs by transfer of the revenue-producing activities of the Panama Canal Company to Panama or to the private sector are offset by loss to the Commission of revenues now produced by those activities in an amount estimated at \$5 million.

Assuming a saving in costs of \$6 million in general corporate expense and in the net cost of Canal Zone Government, the adjusted estimated total costs of the Commission in 1978, including the treaty payments to Panama, would be about \$392 million.

Tolls revenue deficiency.

The statute enacted by the Congress governing tolls for use of the Panama Canal requires tolls at rates sufficient to recover costs of operation of the canal and related facilities and appurtenances, including interest on the investment of the United States, depreciation, and an appropriate share of the net cost of the Canal Zone Government. 76A Stat. 7. As shown above, in the first year of operation under the new treaty, revenue from tolls and other sources is estimated at \$311 million while costs of operation are estimated at \$392 million, leaving a revenue deficiency of \$81 million or 46 percent of tolls revenues estimated for that year at current rates. Studies of the effect on Panama Canal traffic of increases in rates of tolls indicate that a substantial increase in toll rates will result in a slight loss of traffic with a corresponding loss of tolls revenue in the first year the new rates are in effect, and that such losses will increase over time until the maximum effect is reached ten years after the increase goes into effect. This sensitivity of canal traffic and revenues to increases in rates of tolls is measured by the cost of alternatives to use of the canal, on the principle that as alternative arrangements less costly to the user of the canal develop over time, those arrangements will be adopted in preference to use of the canal, with consequent reductions in cargo moving through the canal and in revenues from tolls for such use. This principle is recognized in the table on page 25 of the EIS. The voluminous studies that have been made on the subject are cited in the 1976 Assessment. (Tab F of the EIS at page 5).

Although the studies referred to above indicate that even in the first year of a tolls increase some loss of traffic would result, for purposes of this computation it is assumed that a 46% increase in tolls would be sufficient to recover the tolls revenue deficiency of \$81 in the first year.

Increases in rates of tolls required by the proposed treaty.

On the basis of the assumption stated in the preceding paragraph, it appears that the proposed treaty would require increases in rates of tolls in the first year of operation of the treaty as shown in Table 5:

Table 5

Increase in Tolls Required by Proposed Treaty

	<u>Present Rate</u>	<u>New Rate</u>	<u>Per cent Increase</u>
Laden	\$ 1.29	\$ 1.88	46
Ballast	1.03	1.50	46
Displacement	.72	1.05	46

These rates would require adjustment in future years as a result of losses in Panama Canal traffic resulting from the tolls increase or other causes and other changes in revenue and expense varying substantially from the 1978 budget estimate.

Cumulative effect of tolls increases.

The increase in rates of tolls required by the proposed treaty would follow increases of 19.7% in 1974 and 19.5% in 1976, as well as changes in the rules of measurement in 1976 resulting in an average increase of about 5% in tolls paid by vessels using the canal. The total effect of the three actions represented a cumulative increase in tolls payments of about 50%. The effect of the measurement rules change is an average effect on all ships; the effect of the rules change increased rates paid by passenger ships, reefers, and general cargo ships by averages of 27.7%, 9.7%, and 8.5% respectively, so that the cumulative increase on those types of ships was substantially greater than 50%. This will be an important factor in assessment of the effect of a further tolls increase of the magnitude of that apparently required by the new treaty.

The effect of an increase of 46% over current rates of tolls would amount to a cumulative increase of 119.29% over the rates in effect prior to July 1974.

Environmental effect of toll increases.

The EIS refers to the 1976 Assessment of the environmental effect of the tolls increase in that year and assumes that the tolls increases resulting from the treaty will not have a greater environmental impact than the 1976 increase. (page 26). The 1976 Assessment was based on the studies made for the Panama Canal Company that concluded that an increase in toll rates of 50% above the rate in effect prior to July 1974 would result in loss of some 11.5 million tons of Panama Canal cargo after ten years from the date of the increase. The same studies showed that an increase in rates of tolls of 100% and 150% would result in the loss of 49 million tons and 80 million tons, respectively, in the tenth

year of the increase. The 1976 Assessment traced in detail the environmental effect of the loss of the 11.5 million cargo tons due to the cumulative 50% increase by showing the effect of the increase on the movement of the affected commodities on the trade routes involved and the consequences of the diversion of the cargo to the various alternatives to use of the canal. No similar analysis is attempted in the EIS, and it is obvious that a cumulative increase of 119% over the rates in effect prior to July 1974 would have a different and greater effect than the 50% increase considered in the 1976 Assessment and that the environmental impact would be proportionately greater.

For example, although the EIS suggests that toll increases resulting from the treaty will not divert any greater amount of traffic to U.S. rail lines than earlier increases did, data submitted by ocean carriers in the 1976 tolls proceeding indicated that the 1976 increase brought the cost of use of the canal for container traffic to a level where cost of transportation of containers across the United States by rail was an increasingly attractive economic alternative. Container traffic is an important segment of Panama Canal traffic in intercoastal trade as well as on established routes between Asia and the United States and Asia and Europe. See Panama Canal Company, Report of Panel on Proposed Changes in Rates of Tolls for the Panama Canal, September 13, 1976, pages 19-25.

As suggested above, it is apparent that the effect on the environment of the changes in tolls cannot be meaningfully assessed without an up-to-date qualified projection of traffic through the canal over a ten-year period following the effective date of the increases based on analysis of commodity movements through the canal on the various trade routes involved and the effect on that traffic of tolls increases of the magnitude that the treaty provisions will require.

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Department of State Response to Comments

1. Paragraph 6 of Annex A to the Neutrality Treaty (Tab B, page 18) defines "Inspection" to include "those measures...strictly necessary to assure safe, sanitary transit and navigation..." through the Canal. This provides ample authority to preclude or control the passage of public vessels in dangerously deteriorated condition or those carrying hazardous cargos so as to avoid accidents in the waterway which could have adverse environmental effects.
2. Map at Tab A has been corrected.
3. See the Agreement on Certain Activities of the United States of America in the Republic of Panama (at Tab C page 53.) This provides that the U.S. Army Tropic Test Center may continue its activities in Panama. It is expected that under this arrangement the Center will continue to have the use of the tracts in the Pipeline Road area and to provide protection to the forests and wildlife there. The Governor of the Canal Zone has recently posted this area against hunting.
4. See III.B.1. fourth paragraph.
5. Section III.B.3. describes the provisions of the Treaty and other measures designed to ameliorate the impact of Treaty actions on employment. A number of these were adopted subsequent to the issuance of the draft EIS.
6. See III.B.6. and Tab K.
7. See Section III.B.7.
8. See Section III.B.3<sup>1</sup> and 5.
9. See Article VI, Section 6 of the Agreement in Implementation of Article III of the Panama Canal Treaty (Tab C, p.6).
10. See Section III.D.2.

DEPARTMENT OF STATE

RESPONSE TO COMMENTS

BY

FEDERAL AGENCIES, PRIVATE ORGANIZATIONS

AND INDIVIDUALS

- be politically unrealistic to expect the Panamanian Government to give specific assurances in the present Treaty on how it will manage its own forest lands. On the other hand, there is good reason to expect that in the new, cooperative atmosphere that will be created by the Treaties, the Panamanian Government will be prepared, in its own self-interest, to take more effective steps to preserve the watershed forests and their wildlife. Their request for assistance in the Watershed Management project is evidence of this.
25. See Section I.D.6.
26. See Section III.B.8.
27. Because closure of the Canal is such an extreme case, is so hypothetical, and would not result from any Treaty action, it does not seem appropriate to develop this alternative in this Statement.
28. Within the framework of the Treaty negotiations, it would be unrealistic politically to expect the Panamanian Government would accept a provision of the Treaty which would spell out such limits on its development in the Canal Zone. The aim of the present Treaty is to make Panama a strong and interested party in playing an increasingly important role in the continued, safe and efficient operation and defense of the Canal in the next 23 years. This includes greater development of a broad awareness in Panama that protection of the forests and watershed in the area is essential to the operation of the Canal. There is reason to expect that with a direct stake in the operation of the Canal under the Treaties and with the environmental protective provisions of the Treaty the Panamanian Government will join the United States in cooperative measures to preserve the forests and wildlife in the Canal Zone. These measures are discussed in this Statement.

11. See Section III.B.7. on "Effect of Increased Tolls". This letter has been made available to those preparing the new study on Canal traffic and tolls for consideration in preparation of their report.
12. See Section III.B.1. and Tab F.3.
13. There are no indications at this time that these changes will require any increase in U.S. military personnel.
14. See Section III.D.4.
15. Current planning does not foresee any requirement for expedited construction.
16. See Section III.B.7. on "Effect of Increased Tolls." This letter has been made available to those preparing the new study on Canal traffic and tolls for consideration in preparation of their report.
17. See Tabs B. and C.
18. See Section III.B.1. and Tab C. page 59.
19. Under the Treaty the U.S. will control the land and water areas needed to operate the Canal. In these areas it will set the necessary health and sanitation regulations.
20. See Section III.B.1.
21. See discussion of the Watershed Management project, Section III.D.1.
22. See revised Tab A and Tab I.
23. See Section III.B.1.
24. Areas large enough to form 25,000 acre preserves will all be under Panamanian jurisdiction under the new Treaty and it will be up to the Panamanian Government to decide whether to create such preserves. It would

29. See Tab C, pages 55, 61 and 63.
30. See Section III.D.1.
31. See Section III.B.6
32. See Section III.A.
33. See Section III.B.1 and III.D.1.
34. See Tab C page 58 for the exchange of notes relating to Air Traffic Control Services. It is anticipated that the phase-over of air traffic control functions from the FAA to the Panamanian Government will take place over a period of several years. There should be no construction involved in this change-over and it is expected that personnel involved in the shift will continue their employment with the two Governments.
35. See Section III.B.1.
36. See Section III.D.2.
37. See Section III.B.6.
38. U.S. management of the Canal Zone has resulted in the tropical forests, which ecologists and other are all agreed must be protected. This is the best possible evaluation of the effectiveness of U.S. land management practices in the Canal Zone.
39. Studies of areas in Panamanian jurisdiction which are not affected by Treaty actions are outside the scope of this Environmental Impact Statement.
40. See Section III.D.1.
41. Use of the Farfan Marsh for dredge spoil would be subject to prior environmental study by the Joint Commission.
42. See Section III.A. and Tab B, page 4 (Article VI) as well as Tab C pages 55, 61 and 63.
43. The Canal Zone hunting laws are being revised to provide greater protection to endangered and other species in the Zone.
44. See Section III.A.
45. See Section III.D.1.
46. See Section III.B.6.
47. See Sections I.D.2 and III.B.1.
48. Since squatters move into the forest areas of the Canal Zone at random, it is not possible to indicate the exact location and extent of anticipated deforestation. The effects of deforestation on wildlife, soil and water are discussed in Sections I.D.1., III.B.1. and III.D.1.
49. See Section III.B.1.
50. See Section III.B.6. and comment on this subject attached to World Wildlife Fund correspondence.
51. See Section III.D.1.
52. See Section III.B.6.
53. See Tabs B. and C.
54. See Section III.A.
55. See Tab C. pages 55, 61, 63
56. The Canal Zone hunting regulations are being revised to afford increased protection to wildlife in the Zone. The Pipeline Road area has been posted against hunting.

57. See Sections III.A. and III.D.1. These are issues for the Joint Environmental Commission to concern itself with as soon as it starts functioning.
58. See Section III.B.6.
59. See Section III.D.1.
60. The Canal Company has no plans to pump sea water into the lakes in connection with the present Canal operations. In order to accommodate the largest ships, a third lane of locks would use about 100 million gallons of water per transit as compared to the 52 million gallons per transit used by the present Canal. The Canal watershed will not produce enough fresh water to meet this requirement so that pumping sea water into the lakes would be necessary the cost of pumping such a volume of water would affect the project's economic feasibility. It would have serious environmental impacts, which would have to be the subject of environmental impact studies that would precede the canal design.
61. The review period was extended from 30 to 45 days on September 28, 1977.
62. Operation of the Canal under the Neutrality Treaty will be the same as under the provisions of the Canal Treaty, which are addressed in this Statement.
63. The term is "exploit rationally". See Tab F.6.
65. Sections III.B.1 and III.D.1 discuss U.S. payments to Panama for services including sanitation, and the provisions of the AID Watershed Management loan.
66. This provision has been changed since the draft EIS was written.
67. See Sections III.B.7 and III.C.3.
68. There is no reason why future Panamanian conservation policies and practices must necessarily be a direct projection of past practices. There is in fact, as pointed out in this Statement, evidence that Panamanian policies are changing. The request for the Watershed Management project, which AID is supporting, is one clear indication of this. Numerous articles in the Treaty and associated agreements dealing with environmental matters, to which the Panamanians have agreed, provide other evidence of this.
69. In Article VI of the Treaty, the Panamanian Government has committed itself to implement the Treaty in a manner consistent with the protection of the natural environment of the Republic of Panama. It is difficult to envision what more effective guarantee could reasonably be expected of it.
- The whole thrust of the present Treaty is to free Panama from having a foreign power determine or guarantee in perpetuity what will be done on Panamanian territory. It is politically unrealistic to expect that Panama would accept such an arrangement no matter how worthy the objective of the guarantee. On the other hand, there is a reasonable prospect that these objectives can be achieved through cooperation on a basis of equality with the Panamanian Government, and this is what the present Treaty and agreements seek to do.
70. See Section III.B.1.
71. Announcement of the Environment Impact Statement was made in the Federal Register on August 29, 1977 and notice of the extension of the comment period appeared on October 3, 1977. Copies were made available in accordance with

- Council on Environmental Quality's Guidelines on Preparation of EIS. Public hearings are not required.
72. U.S. Government property can be transferred by treaty as well as by legislation. The House of Representatives will have to approve implementing legislation after the Treaty is ratified.
73. Under the transition provisions of the Canal Treaty (Art. XI) U.S. policing of traffic in the Canal Zone area will continue for thirty calendar months after the Treaty comes into force. This should provide ample time for a turn-over of traffic policing to ensure that there are no abrupt changes with adverse environmental effects. Noise and air pollution resulting from planned Panamanian development projects are discussed in Section III.D.2.
74. Because of Canal Company/Zone Government reduction in force procedures and individual decisions on retirement, etc. it is not possible to specify at this stage which individual jobs will be eliminated and which retained. These details are being worked on by the Canal Company and Zone Government.
75. The Canal Company budget is published in the Annual Report of the Panama Canal Company, Canal Zone Government for the Fiscal Year ended June 30, 1976. See Tab C page 6, paragraph 6 re utility rates. It would be uneconomic for Panamanian utility companies to increase the costs of the Canal Commission (and its employees) from which the Panamanian Government expects to receive revenues from the operation of the Canal.
76. Maintenance of law and order in areas connected with the Canal operation will be in the Panamanian Government's self-interest. U.S. policing will continue for 30 calendar months under the Treaty's transition provision.
77. The book value of U.S. defense installations in the Canal Zone is \$398.42 million. They were constructed from defense appropriations. The Treaty does not preclude further U.S. capital expenditures in the Zone.
78. See Tab C page 26 paragraph 11.
79. The Panama Canal Treaties and related agreements have all been made public.
80. See Sections III.B.1. and III.D.1.
81. These forests are not "being ceded without provision for protection." See Sections III.B.1. and III.D.1 as well as Tab C pages 53, 55, 61 and 63.
82. See Tab K.
83. See Section III.D.1.
84. See Section III.B.7.
85. The Department of State has not pressured the Canal Zone Government to keep it from enforcing its regulations for the protection of the Madden Forest Reserve.
86. See Section III.D.1.
87. See Section III.D.1. and Tab C. pages 55, 61 and 63.
88. See Section III.D.1.
89. See Section III.B.7. on "Effect of Increased Tolls". This letter has been made available to those preparing the new study on Canal traffic and tolls for consideration in preparation of their report.











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